

	Espacio reservado para el adhesivo de radicación
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DIRECCIÓN DE NUEVAS CREACIONES
Procedimiento acelerado de exámenes de patente (PPH)

1	NÚMERO DE SOLICITUD ANTE LA SIC: NC2018/0011902		
2	GLOBAL - PPH ☐ PAÍS	3	PCT – PPH ☐ PAÍS
4	PROSUR ☐ PAÍS	5	Alianza del Pacifico (AdP) ☐ PAÍS
6	OFICINA DE PRIMERA PRESENTACIÓN (OPP) ☐	7	OFICINA DE EXAMEN ANTERIOR (OEA) ☒
8	NÚMERO DE SOLICITUD O PUBLICACIÓN DE LA SOLICITUD (OPP) ☐ NÚMERO DE SOLICITUD EN OFICINA DE EXAMEN ANTERIOR (OEA): ☒ NÚMERO DE SOLICITUD PCT: ☐		1. 15/337,110 (Patente No. US 10266093 B2)
9	☐ REPRESENTANTE LEGAL ☒ APODERADO		
APELLIDOS DAZA MONTALVO		NOMBRES CAROLINA MERCEDES	IDENTIFICACIÓN C.C 66783790 T.P. 141563 CSJ
DIRECCIÓN Carrera 11 No. 86-53 Piso 3		No. TELÉFONO 6181088	notificaciones@clark emodet.com.co
CIUDAD Bogotá D.C.		CORREO ELECTRÓNICO	
PAÍS Colombia		No. RADICACIÓN O PROTOCOLO DE PODER GENERAL	
10	CONDICIONES PARA ACCEDER A ESTE PROCESO:		
10.1. DATOS DE PRIORIDAD ☐ SI ☒ NO			
(33) PAÍS DE ORIGEN		CÓDIGO PAÍS	(31) NÚMERO
1. 2.			(32) FECHA (AAAA/MM/DD)
10.2. DATOS SOLICITUD INTERNACIONAL PCT ☒ SI ☐ NO			
Solicitud Internacional No.		PCT/US2016/026673	Fecha 2016/04/08
Publicación Internacional No.		WO/2017/176285	Fecha 2017/10/12
*El solicitante presenta una copia de la(s) reivindicación(es) patentable(s) u otorgable(s) de la solicitud de la Oficina de Primera Presentación que profirió el examen de patentabilidad, junto con una traducción al castellano. ☒ SI ☐ NO			
*El solicitante presenta los resultados de búsqueda de la Oficina de Examen Anterior, junto con una traducción al castellano ☒ SI ☐ NO			
REQUISITOS PARA EL RECONOCIMIENTO DE LOS RESULTADOS DE EXÁMENES DE PATENTABILIDAD EFECTUADOS A SOLICITUDES EXTRANJERAS			
Para que la Superintendencia de Industria y Comercio pueda reconocer los resultados de exámenes de patentabilidad producidos por otras Oficinas de Propiedad Industrial se debe cumplir con las siguientes condiciones:			
(a) Al momento de solicitar el examen de patentabilidad, si el solicitante pide que se reconozcan exámenes de patentabilidad de otras oficinas extranjeras, deberá aportar junto con el pago de la tasa correspondiente, los siguientes anexos:			
(i) Copia de las resoluciones, fallos o decisiones que han sido relevantes para la determinación de la patentabilidad de la(s) solicitud(es) en la Oficina que haya proferido el examen de patentabilidad que contienen reivindicaciones patentables u otorgables que son la base de la petición, y si es del caso, su traducción al castellano. ☒ SI ☐ NO			
(ii) Copia de todas las reivindicaciones determinadas como patentables u otorgables en la Oficina que profirió el examen de patentabilidad y, si es del caso, su traducción al castellano. ☒ SI ☐ NO			
(iii) Copia de los antecedentes, información o documentos citados por el examinador de la Oficina de Primera Presentación del examen de patentabilidad, en las resoluciones, fallos o decisiones correspondientes, incluyendo la literatura no patente. Los documentos de patente deberán presentarse siempre y cuando no estén disponibles para la Superintendencia de Industria y Comercio mediante el simple acceso a bases de datos gratuitas. ☒ SI ☐ NO			
(iv) Una tabla de correspondencias de las reivindicaciones que han sido determinadas como patentables u otorgables en la solicitud de la Oficina que haya proferido el examen de patentabilidad. ☒ SI ☐ NO			
11	FIRMA DEL SOLICITANTE, DEL APODERADO O DEL REPRESENTANTE LEGAL Junto a cada firma, indicar el nombre del firmante y su calidad (si tal calidad no es obvia al leer el petitorio)		
 CAROLINA DAZA MONTALVO			



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

70155 7590 12/14/2018
GREENBERG TRAUIG (HOU)
INTELLECTUAL PROPERTY DEPARTMENT
1000 Louisiana Street
Suite 1700
Houston, TX 77002

EXAMINER

RIVERA, WILLIAM ARAUZ

ART UNIT

PAPER NUMBER

3654

DATE MAILED: 12/14/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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15/337,110

10/28/2016

Christopher WHITE

(027US)
166301-014002/US

3872

TITLE OF INVENTION: PIPE DEPLOYMENT TRAILER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional

SMALL

\$500

\$0.00

\$0.00

\$500

03/14/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

70155 7590 12/14/2018
GREENBERG TRAUIG (HOU)
INTELLECTUAL PROPERTY DEPARTMENT
1000 Louisiana Street
Suite 1700
Houston, TX 77002

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

	(Typed or printed name)
	(Signature)
	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/337,110	10/28/2016	Christopher WHITE	(027US) 166301-014002/US	3872

TITLE OF INVENTION: PIPE DEPLOYMENT TRAILER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	03/14/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
RIVERA, WILLIAM ARAUZ	3654	242-557000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/337,110	10/28/2016	Christopher WHITE	(027US)	3872
70155	7590	12/14/2018	166301 014002/US	
GREENBERG TRAUIG (HOU)			EXAMINER	
INTELLECTUAL PROPERTY DEPARTMENT			RIVERA, WILLIAM ARAUZ	
1000 Louisiana Street				
Suite 1700				
Houston, TX 77002				
			ART UNIT	PAPER NUMBER
			3654	
DATE MAILED: 12/14/2018				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/337,110	Applicant(s) WHITE et al.	
	Examiner WILLIAM A RIVERA	Art Unit 3654	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment of November 13, 2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-3,5-11 and 19-25. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____. 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	5. ☐ Examiner's Amendment/Comment 6. ☐ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
--	---

/WILLIAM A. RIVERA/
Primary Examiner, Art Unit 3654

Notificación de Concesión	Solicitud No. 15/337,110	Solicitante(s) WHITE <i>et al.</i>	
	Examinador WILLIAM A RIVERA	Unidad de Arte 3654	Estado AIA Sí

-- La FECHA DE ENVIO de esta comunicación aparece en la hoja de cubierta con la dirección de correspondencia--

Todas las reivindicaciones son concedidas, TRÁMITE SOBRE EL FONDO ESTÁ (O PERMANECE) CERRADO en esta solicitud. Si no se incluye acá (o enviada previamente), una Notificación de Concesión (PTOL-85) u otra comunicación adecuada será enviada en su debido momento. **ESTA NOTIFICACION DE CONCESION NO ES UNA CONCESION DE DERECHOS DE PATENTE.** Esta solicitud está sujeta a retiro de emisión a la iniciativa de la Oficina o a petición del solicitante. Ver 37 CFR 1.313 y MPEP 1308.

1. Esta comunicación responde a modificaciones de 13 de noviembre de 2018.

Una declaración bajo **37 CFR 1.130(b)** se presentó el_____.

2. Se hizo una elección por el solicitante en respuesta a un requerimiento de restricción definido durante la entrevista el ____; el requerimiento de restricción y la elección se han incorporado en esta acción.

3. Las reivindicaciones concedidas son 1-3, 5-11 y 19-25. Como resultado de las reivindicaciones aceptadas, usted puede ser elegible del beneficio del programa de **Autopista de Trámite de Patente** en una oficina de propiedad intelectual participante para la correspondiente solicitud. Para más información, por favor ver http://www.uspto.gov/patents/init_events/pph/index.jsp o enviar una pregunta a PPHfeedback@uspto.gov.

4. Se reconoce una reivindicación de prioridad extranjera bajo 35 USC sección 119(a)-(d) o (f).

Copias certificadas:

a) Todas b) Algunas c) Ninguna de las:

- 1. Copias certificadas de los documentos de prioridad se han recibido.
- 2. Copias certificadas de los documentos de prioridad se han recibido en la Solicitud No. _____.
- 3. Copias de las copias certificadas de los documentos de prioridad se han recibido en esta solicitud de fase nacional de la Oficina Internacional (Regla PCT 17.2 (a)).

* Copias certificadas no recibidas: _____.

El Solicitante tiene TRES MESES A PARTIR DE LA “FECHA DE ENVIO” de esta comunicación para presentar una respuesta que cumpla con los requerimientos indicados anteriormente. Falla en cumplir a tiempo resultará en el ABANDONO de esta solicitud.

ESTE PERIODO DE TRES MESES NO ES EXTENSIBLE

5. Se deben presentar FIGURAS CORREGIDAS (como “hojas de reemplazo”).
Incluyendo cambios requeridos por la Enmienda/Comentario del Examinador adjunto o en la Acción Oficial de Papel No./Fecha de Envío ____.

Los indicios de identificación tal como el número de solicitud (ver 37 CFR 1.84(c)) se deben escribir en las figuras en el frente (no atrás) de cada hoja. Las hojas de reemplazo deben estar etiquetadas como tal en el encabezado de acuerdo con 37 CFR 1.121(d).

6. Se debe presentar DEPOSITO DE y/o INFORMACIÓN acerca del depósito de MATERIAL BIOLOGICO. Note el comentario del Examinador adjunto con relación al REQUERIMIENTO PARA EL DEPOSITO DE MATERIAL BIOLOGICO.

Adjunto(s)

- | | |
|---|--|
| 1. Notificación de Referencias Citadas (PTO-892) | 5. Enmienda/Comentario del Examinador |
| 2. Declaraciones de Divulgación de Información (PTO/SB/08), Papel No./Fecha Envío_____. | 6. Declaración del Examinador de Razones para Concesión. |
| 3. Comentario del Examinador con Relación a Requerimiento para Depósito de Material Biológico | 7. Otro ____. |
| 4. Resumen de Entrevista (PTO-413), Papel No./Fecha Envío ____. | |

WILLIAM A. RIVERA/ Examinador Principal, Unidad de Arte 3654	
---	--



US010266093B2

(12) **United States Patent**
White et al.

(10) **Patent No.:** **US 10,266,093 B2**

(45) **Date of Patent:** **Apr. 23, 2019**

(54) **PIPE DEPLOYMENT TRAILER**

(56) **References Cited**

(71) Applicant: **TRINITY BAY EQUIPMENT HOLDINGS, LLC**, Houston, TX (US)

U.S. PATENT DOCUMENTS

(72) Inventors: **Christopher White**, Houston, TX (US);
Kyle Helbing, Houston, TX (US);
Alexander Lee Winn, Houston, TX (US)

438,015 A * 10/1890 Lyon B65H 54/585
2,622,918 A 12/1952 Staffe
(Continued)

(73) Assignee: **TRINITY BAY EQUIPMENT HOLDINGS, LLC**, Houston, TX (US)

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 168 days.

CN 2338581 9/1999
EP 877192 11/1998
(Continued)

(21) Appl. No.: **15/337,110**

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US 2017/0292337 A1 Oct. 12, 2017

Related U.S. Application Data

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Primary Examiner — William A. Rivera

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(51) **Int. Cl.**
B60P 1/16 (2006.01)
B60P 1/28 (2006.01)
(Continued)

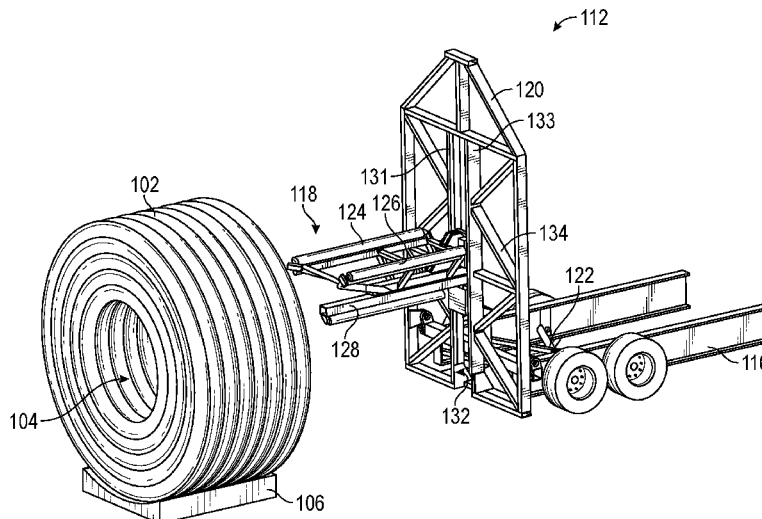
(57) **ABSTRACT**

(52) **U.S. Cl.**
CPC **B60P 3/035** (2013.01); **B60P 1/16** (2013.01); **B60P 1/28** (2013.01); **E21B 19/008** (2013.01); **E21B 19/146** (2013.01)

A trailer is provided having a trailer base and a trailer bed mounted to the trailer base. The trailer includes at least one actuator coupled to the trailer bed and the trailer base that raises and lowers the trailer bed. When the at least one actuator is extended, the trailer bed is raised to a vertical orientation. When the at least one actuator is retracted, the trailer bed is in the horizontal orientation. The trailer includes a lifting head protruding outwardly from the trailer bed. The position of the lifting head is adjustable along a longitudinal axis of the trailer bed.

(58) **Field of Classification Search**
CPC B65H 75/40; B65H 75/403; B60P 3/035; B60P 1/16
See application file for complete search history.

17 Claims, 17 Drawing Sheets



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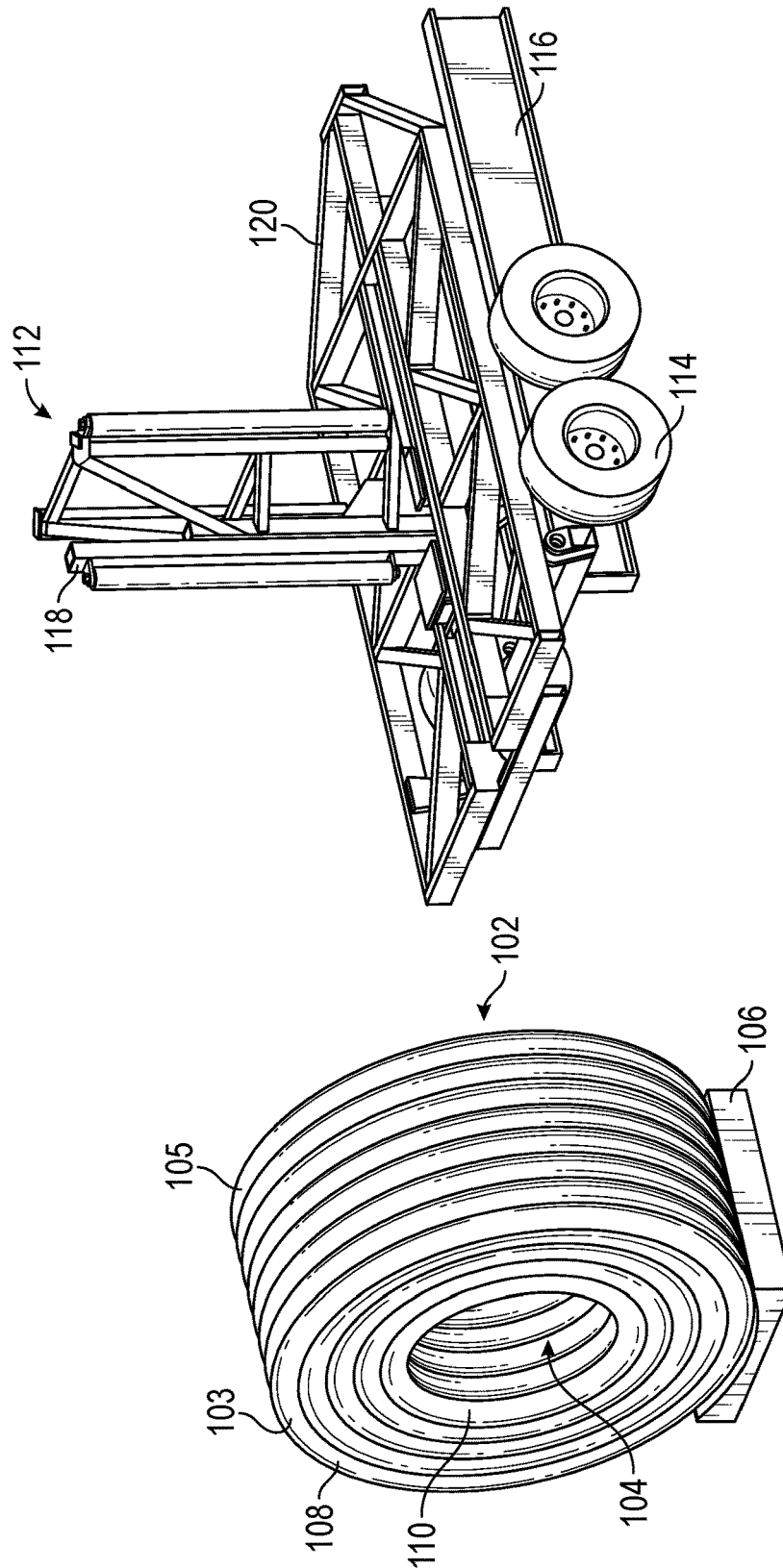


FIG. 1

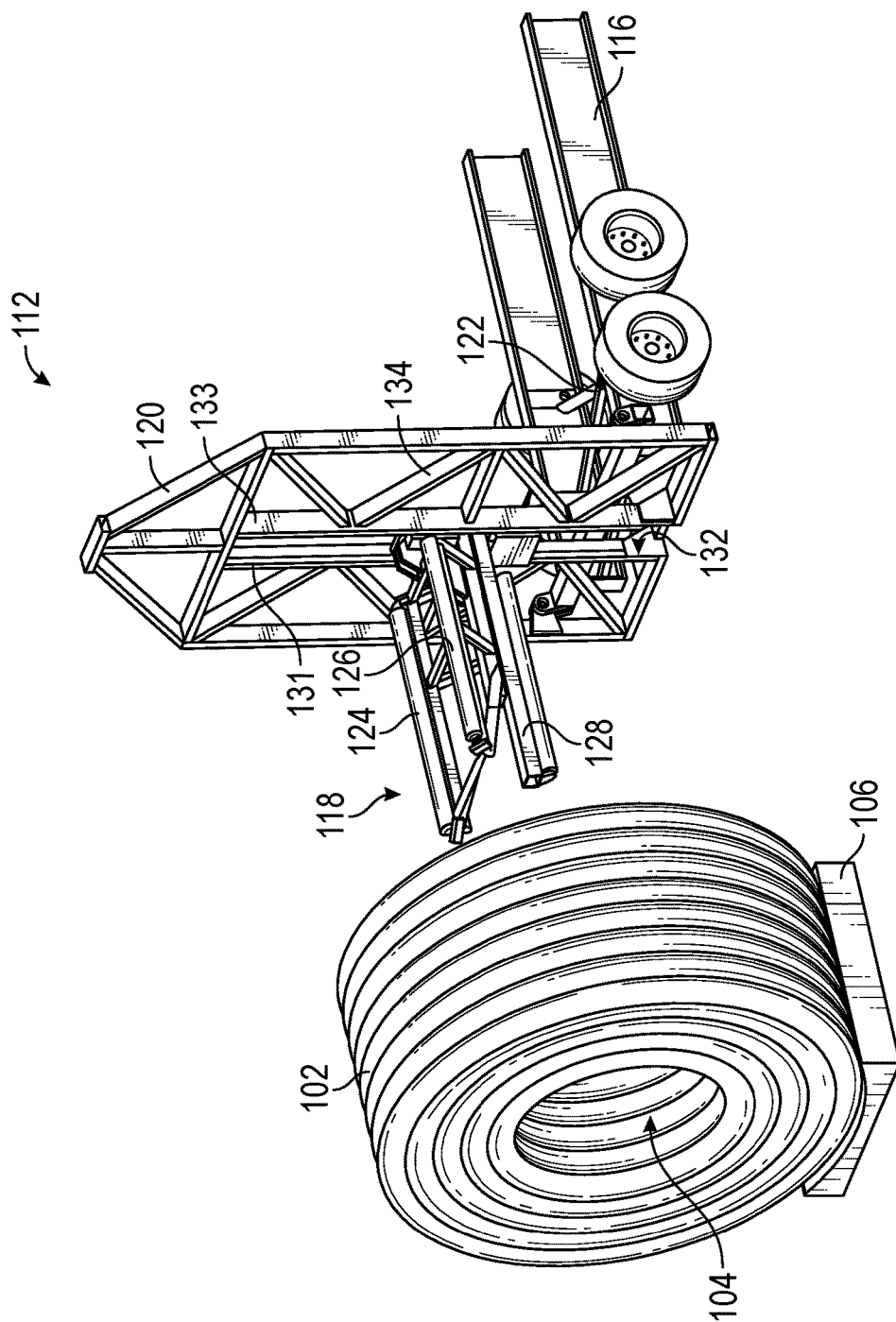


FIG. 2

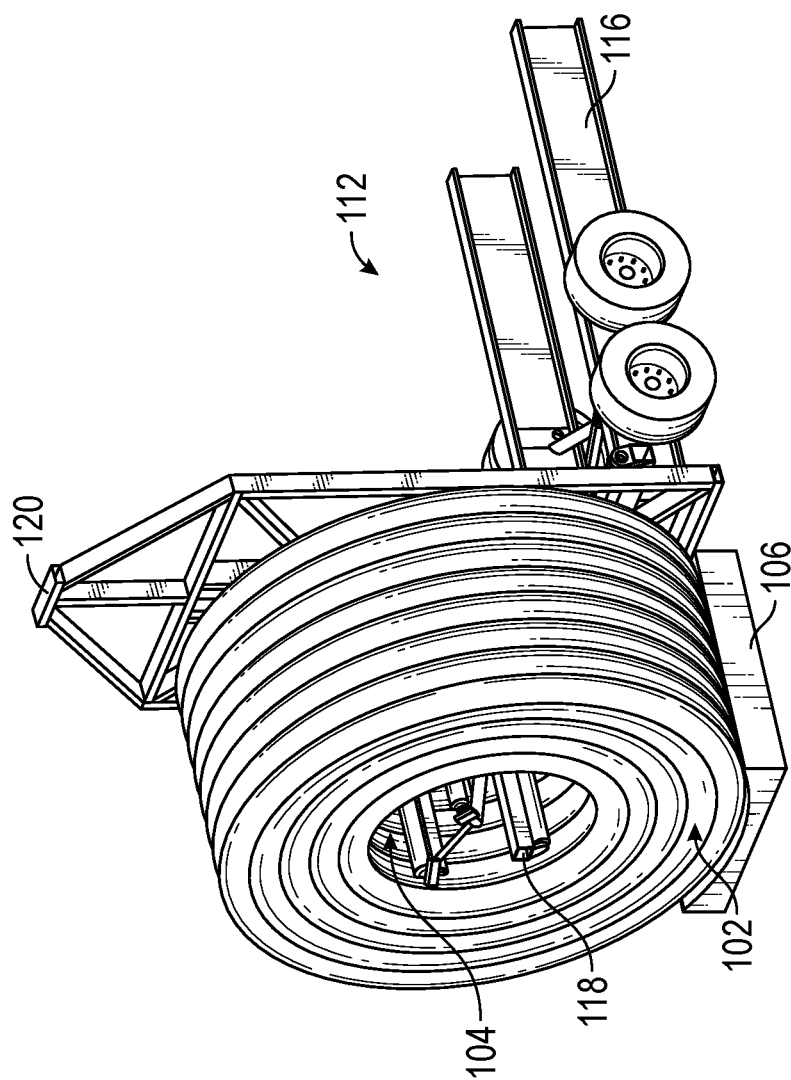


FIG. 3

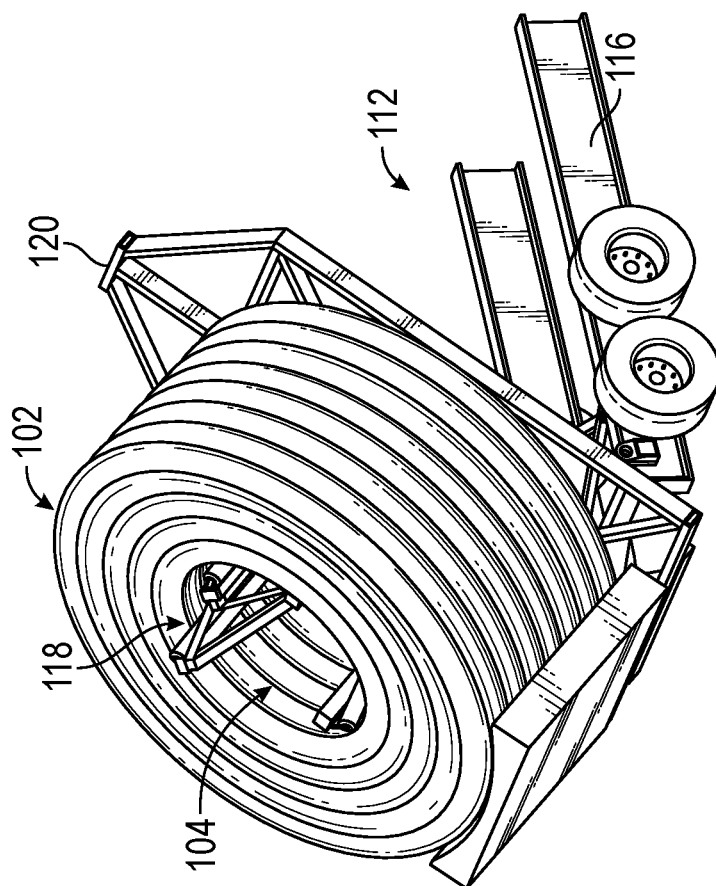


FIG. 4

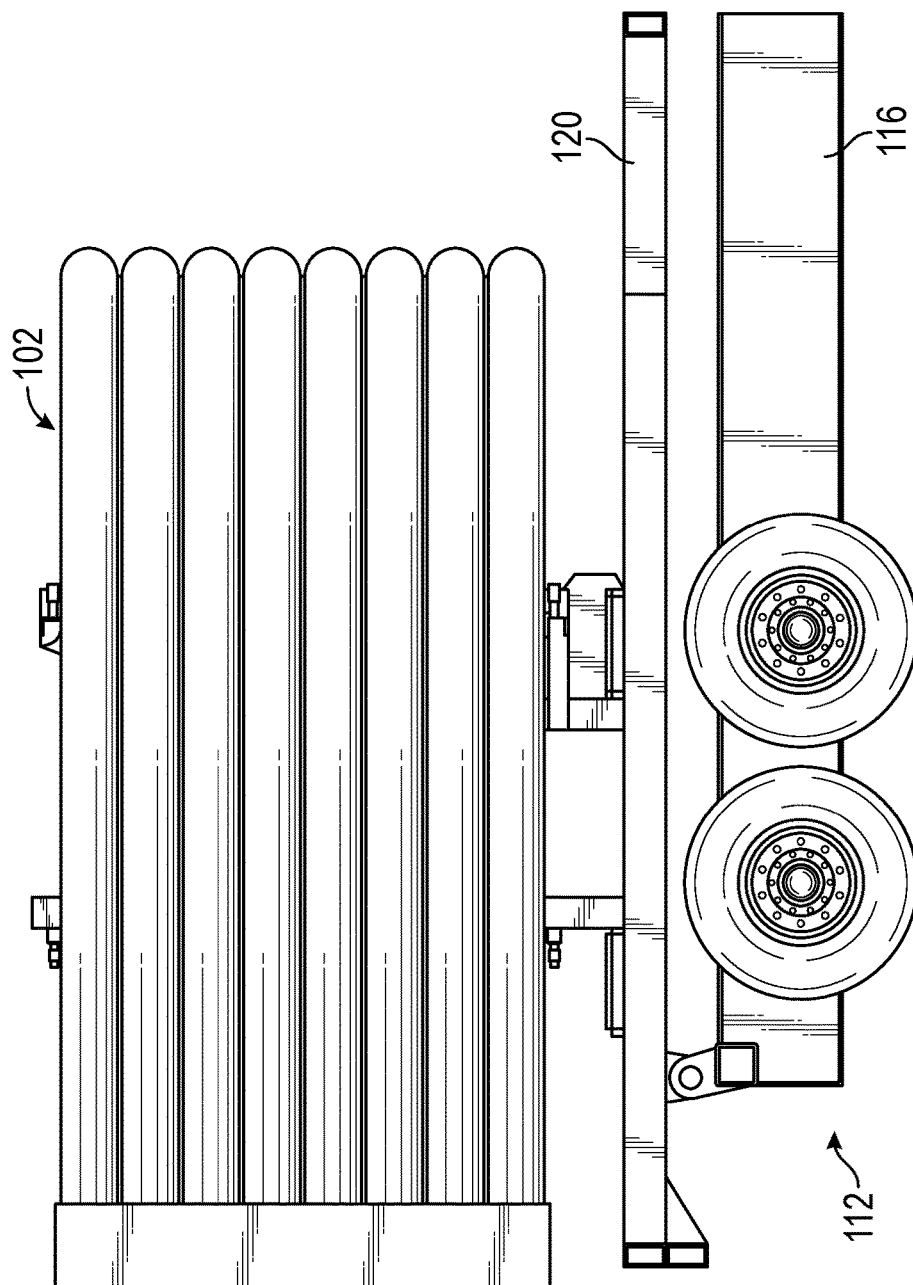


FIG. 5

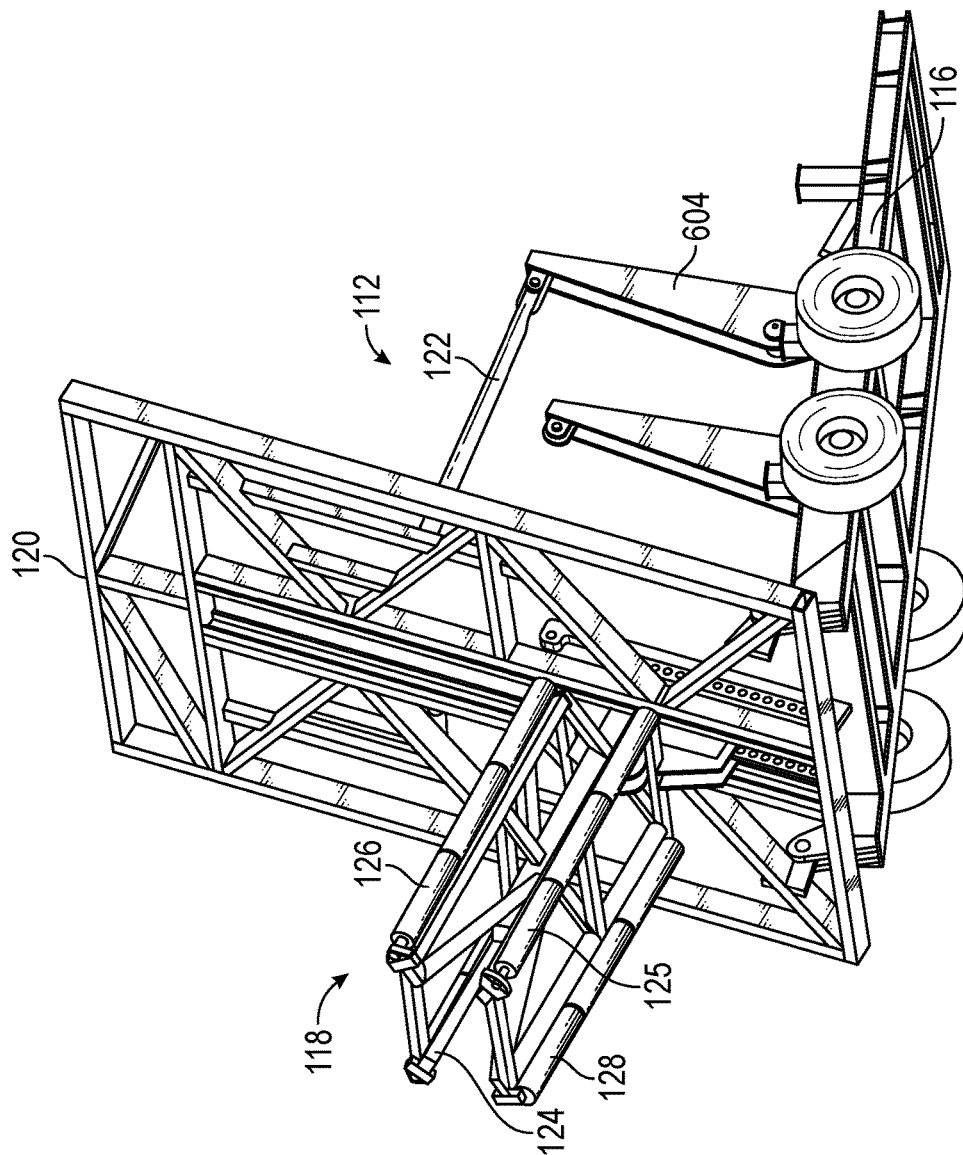


FIG. 6

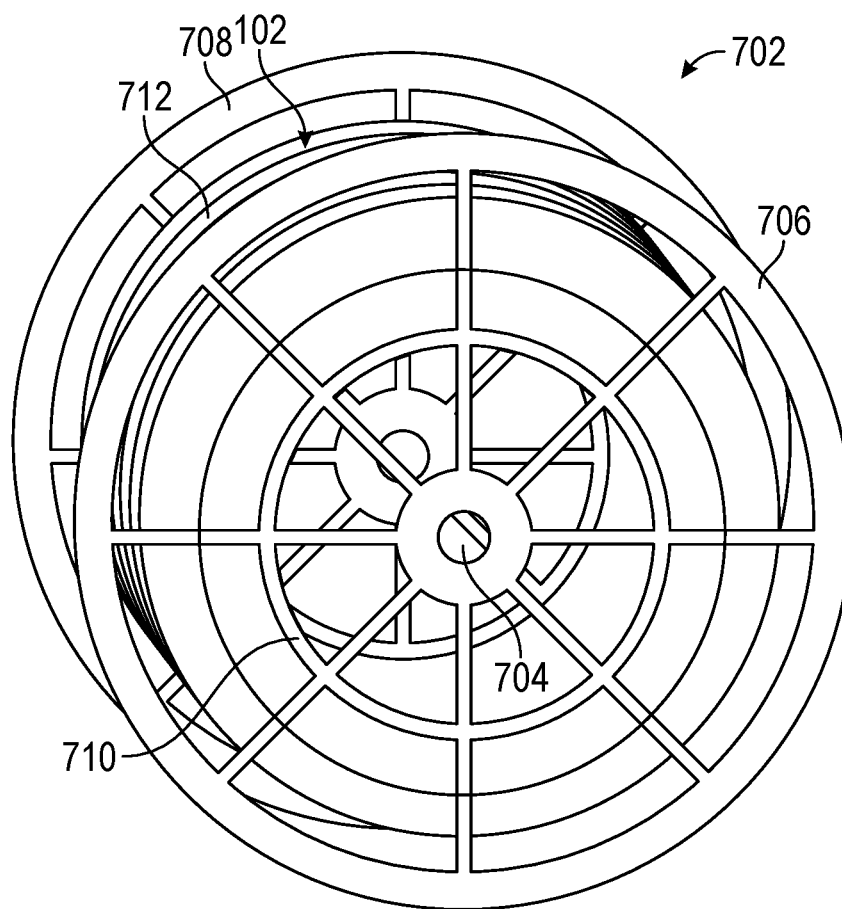


FIG. 7

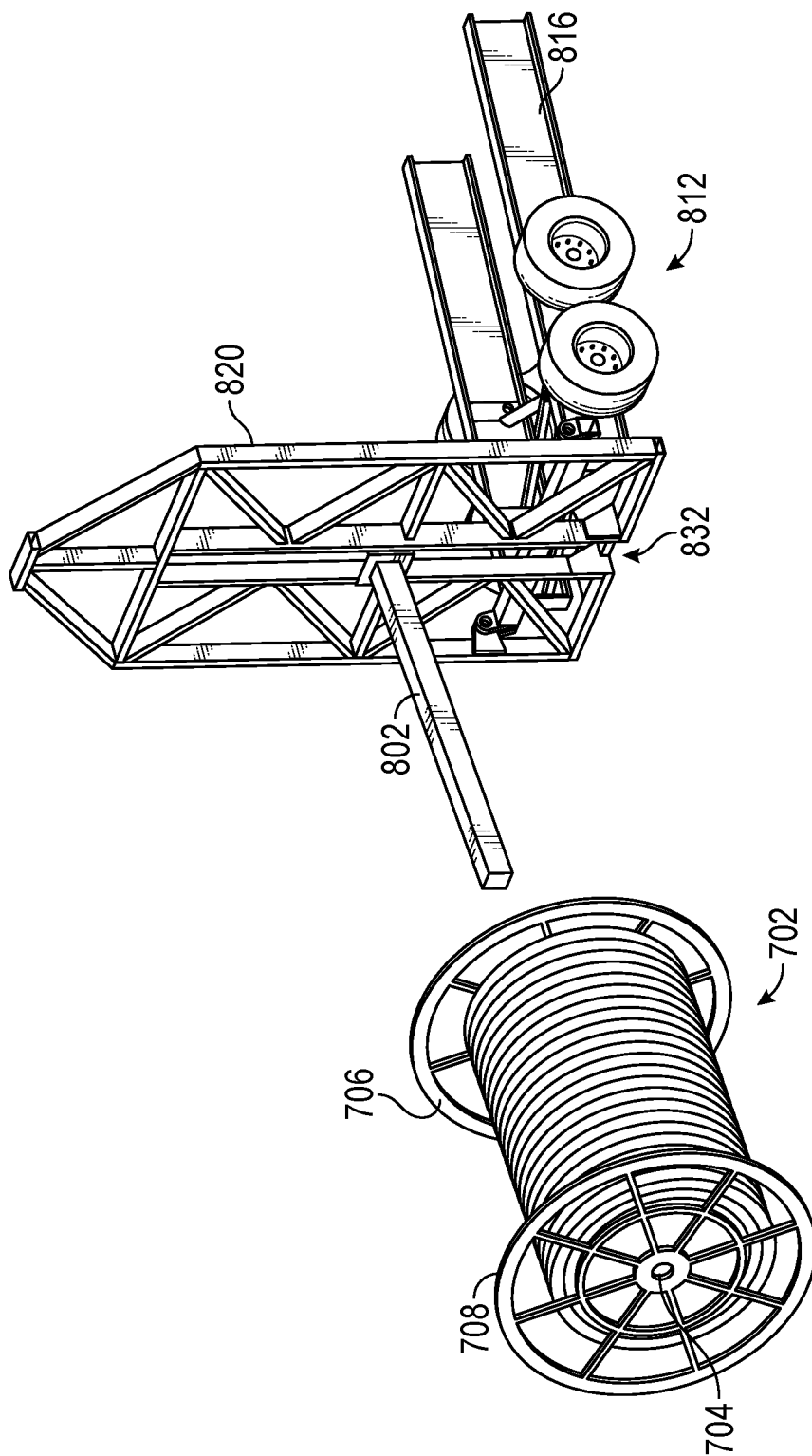


FIG. 8

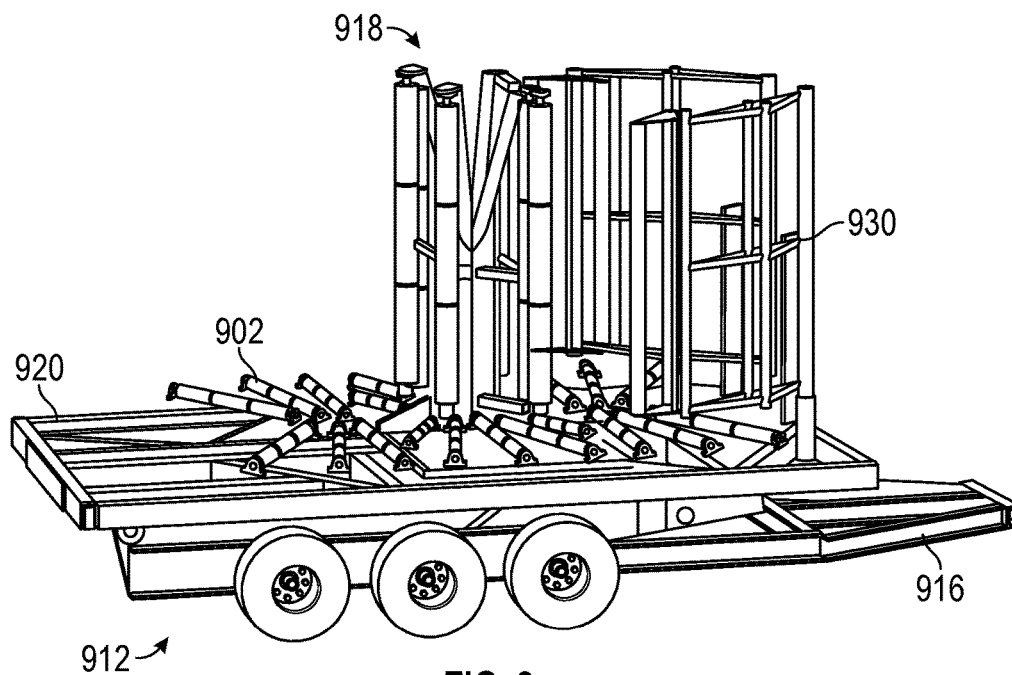


FIG. 9

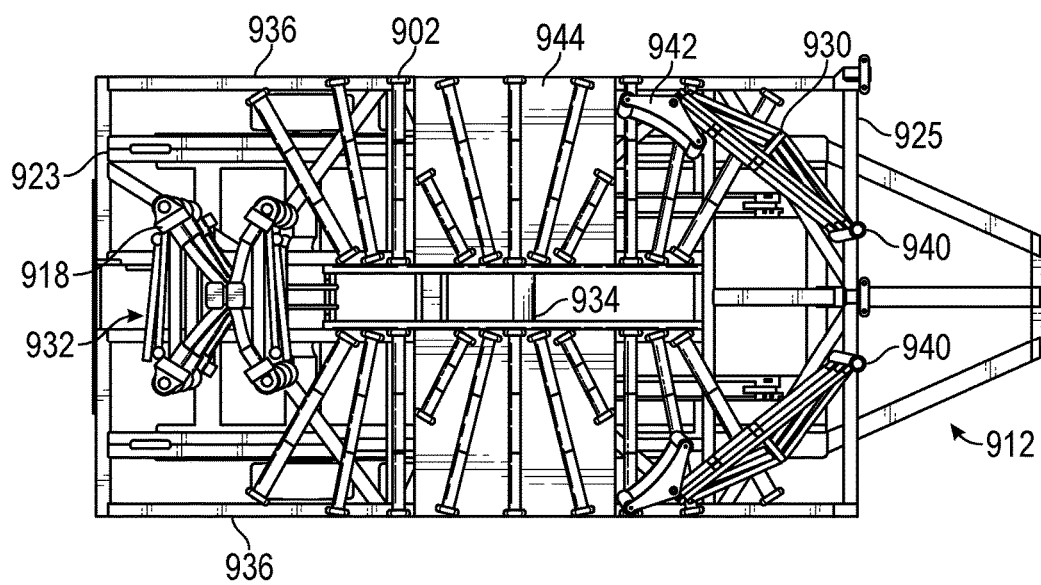


FIG. 10

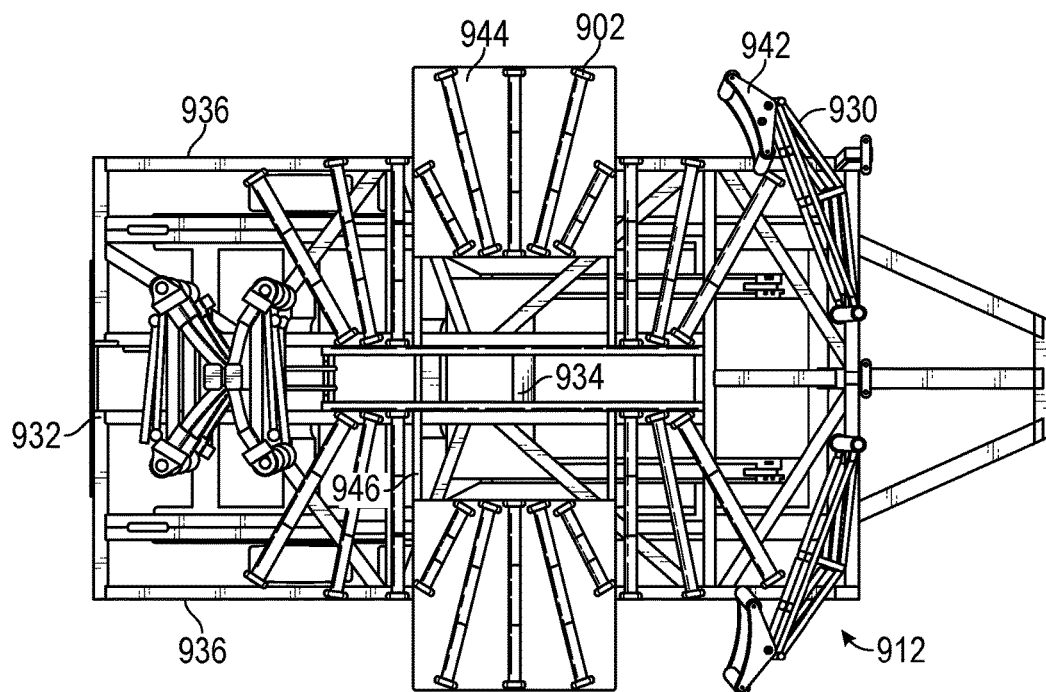


FIG. 11

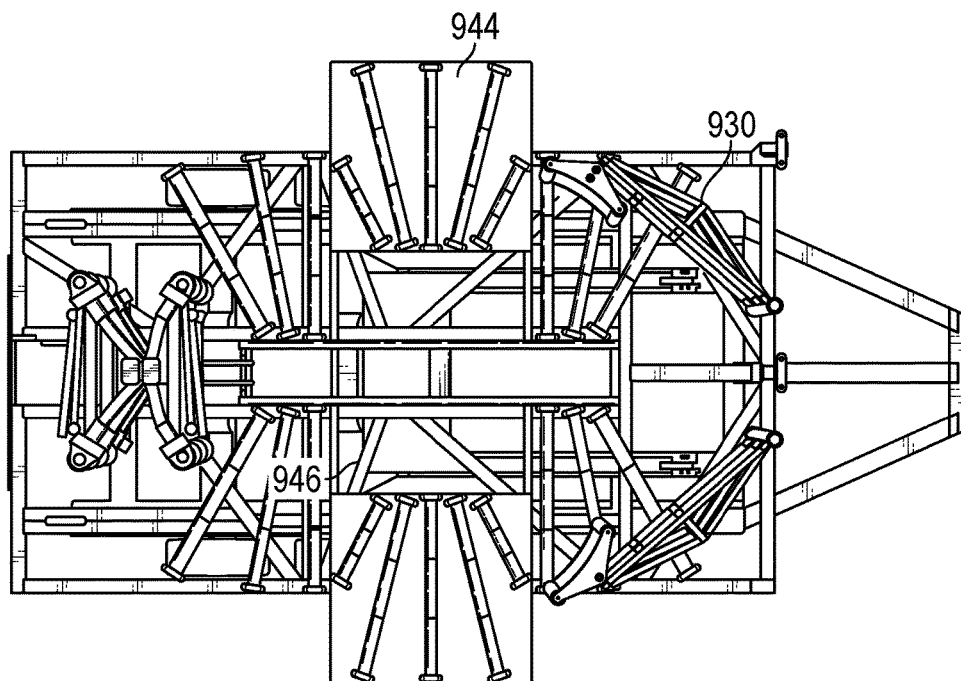


FIG. 12

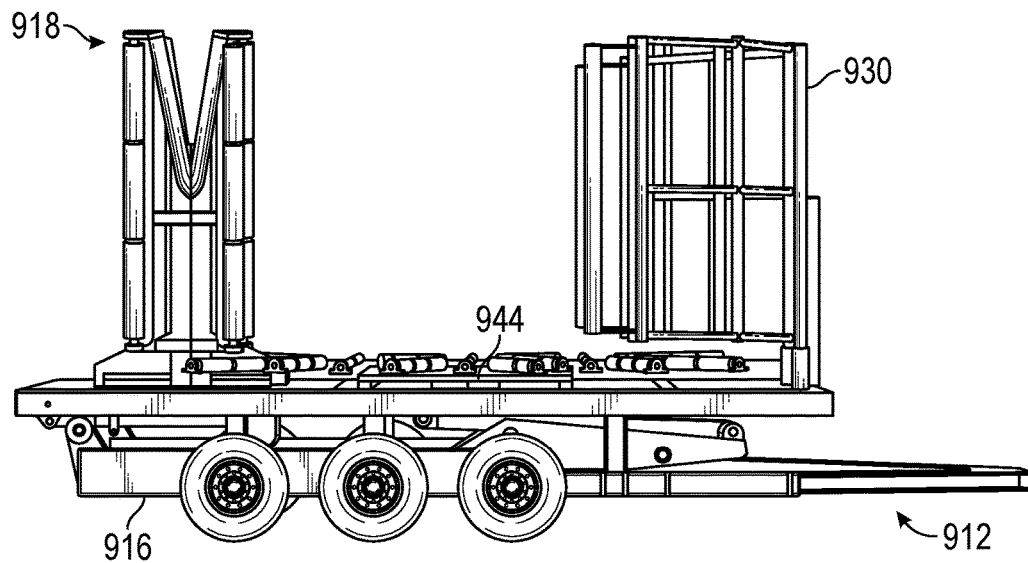


FIG. 13

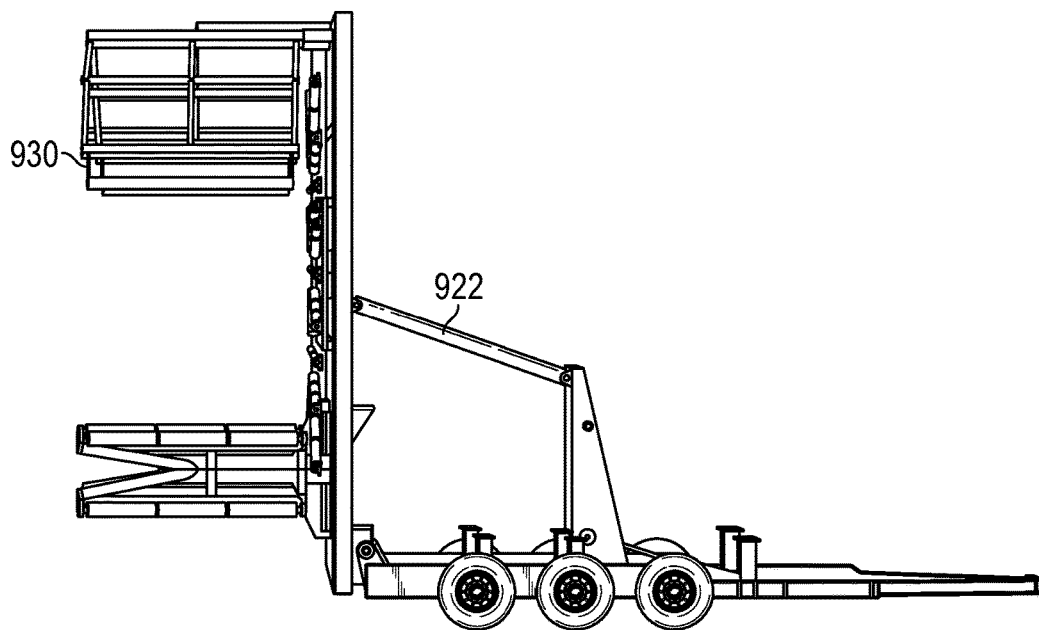


FIG. 14

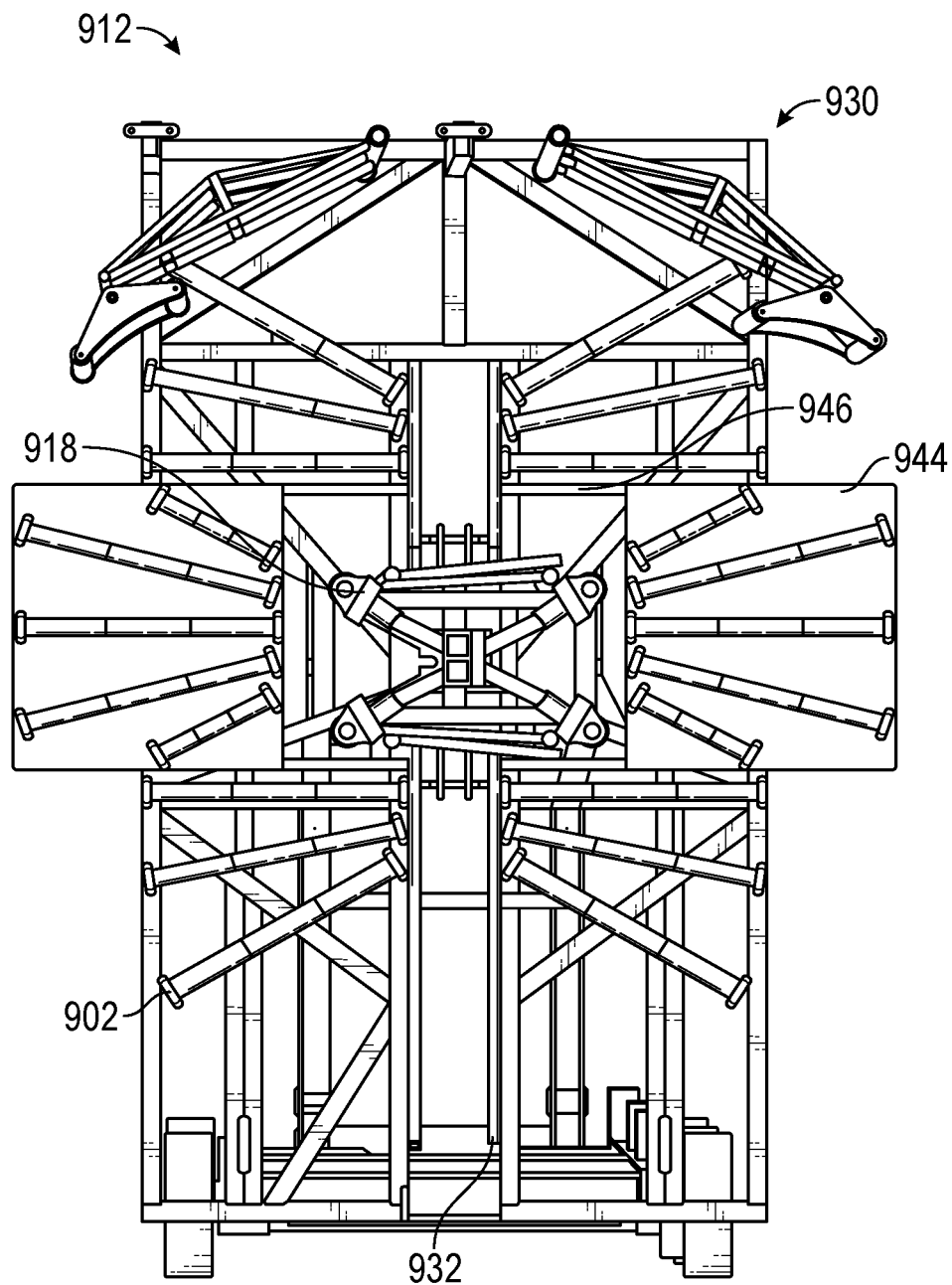


FIG. 15

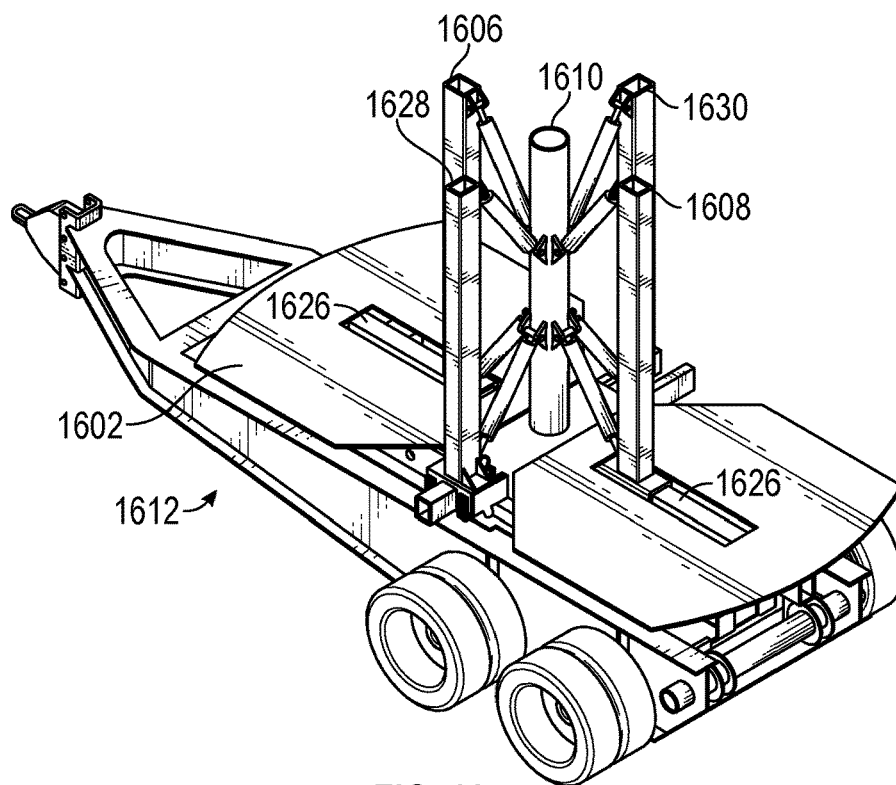


FIG. 16

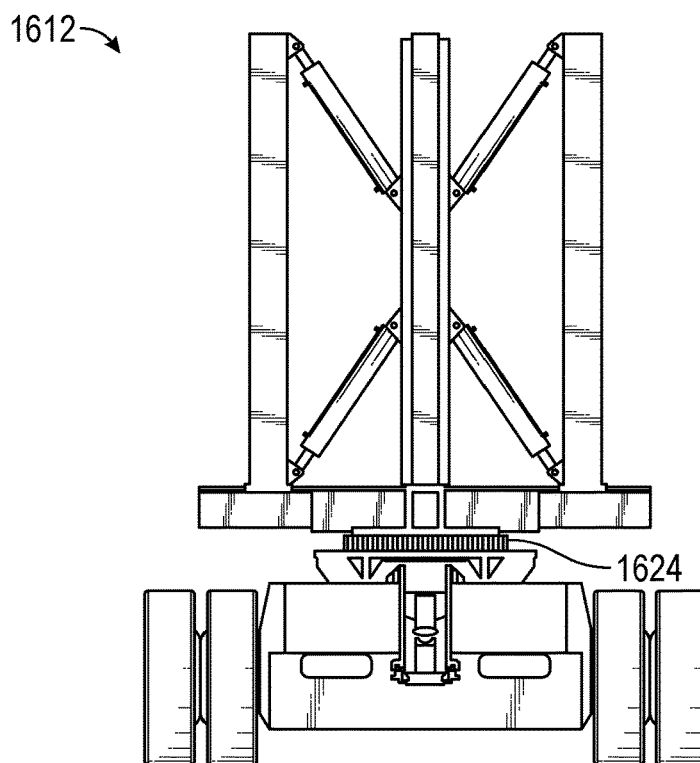


FIG. 17

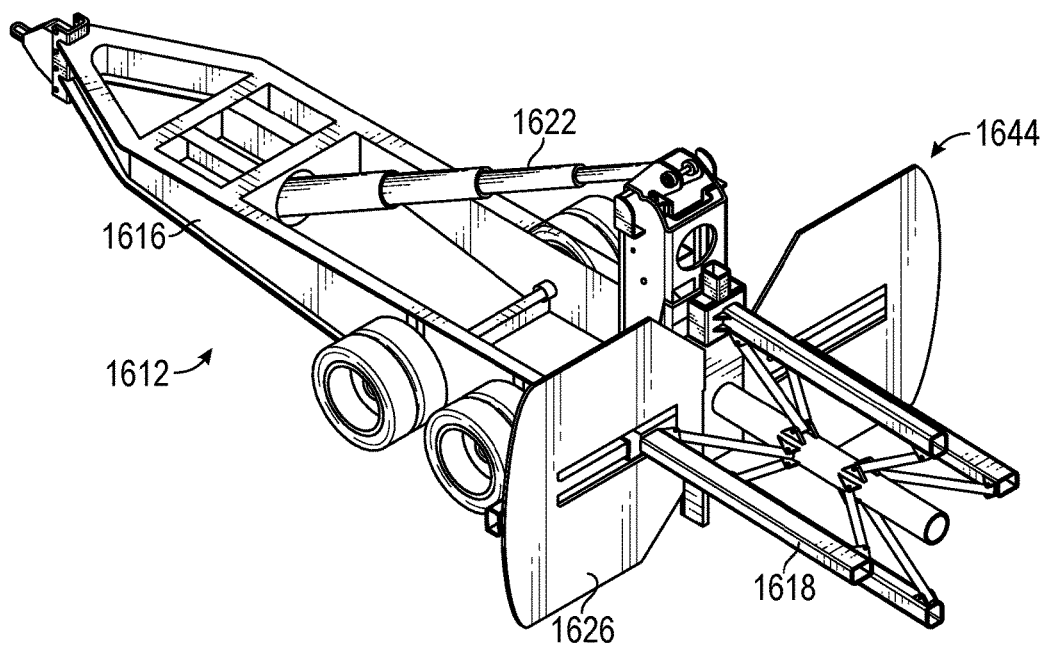


FIG. 18

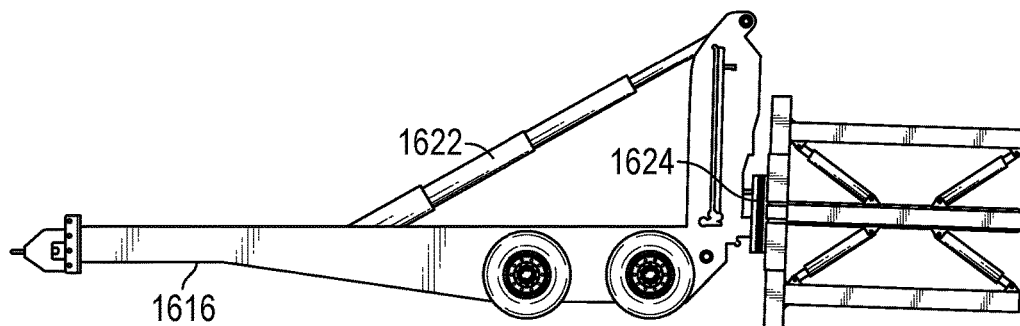


FIG. 19

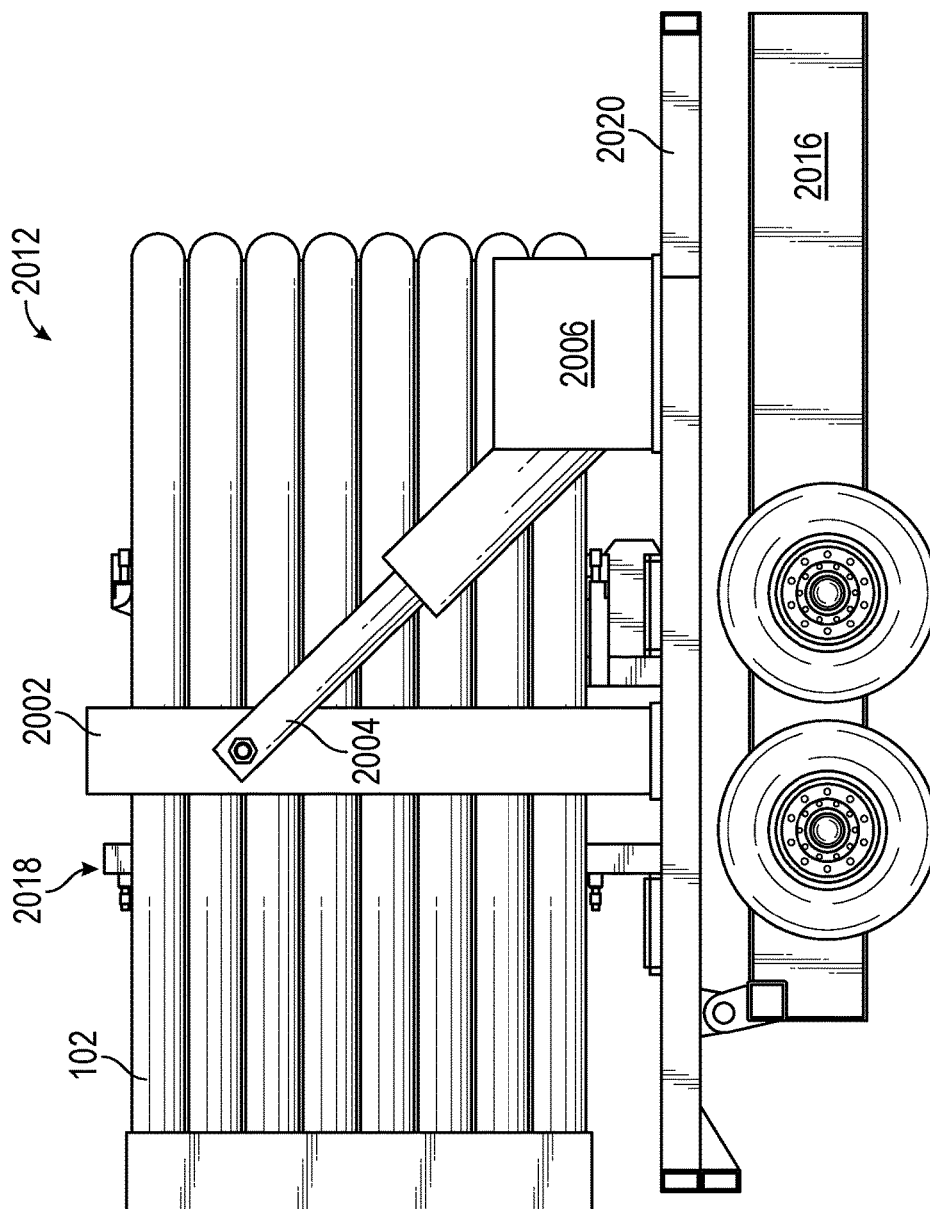


FIG. 20

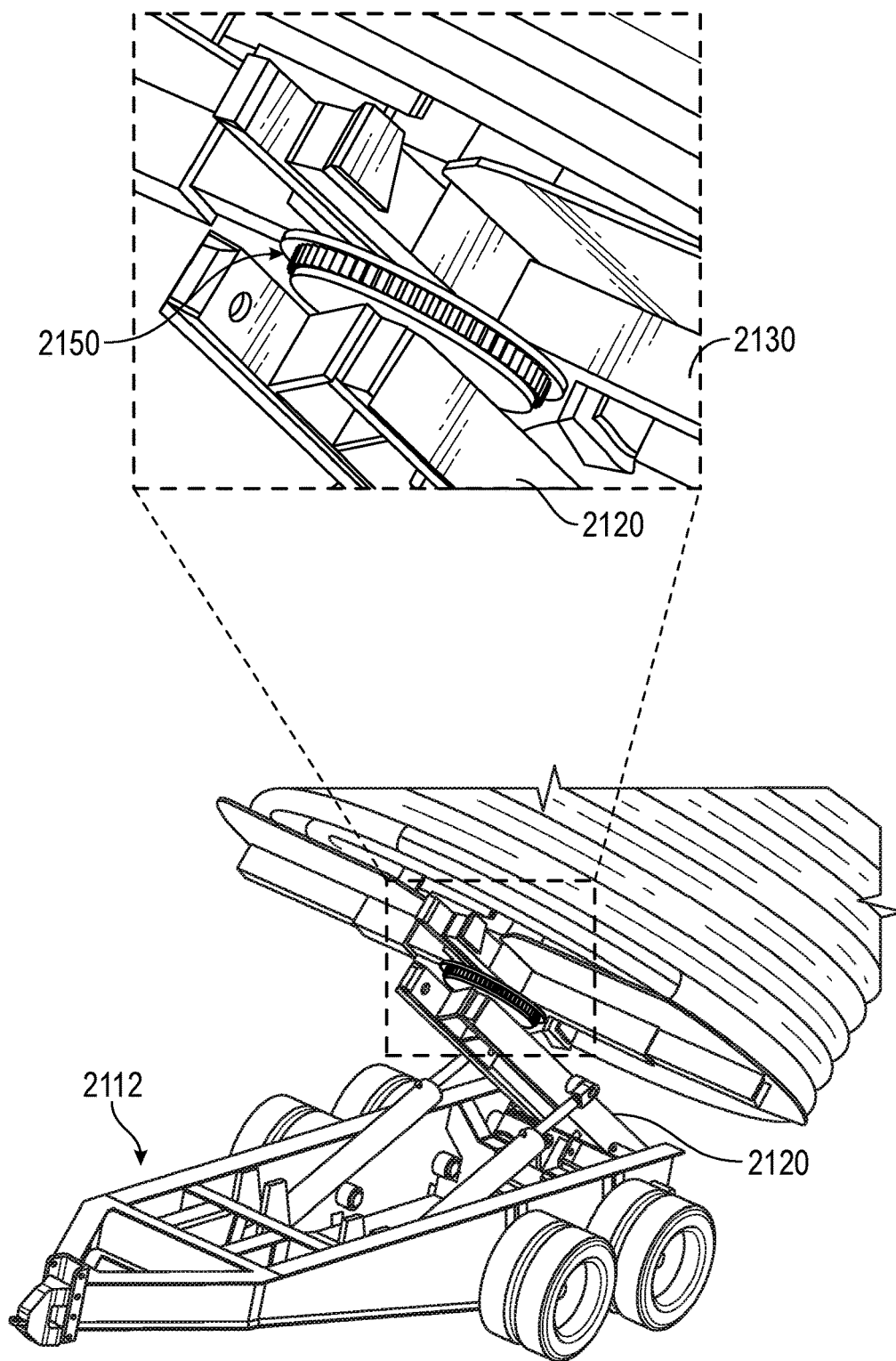


FIG. 21

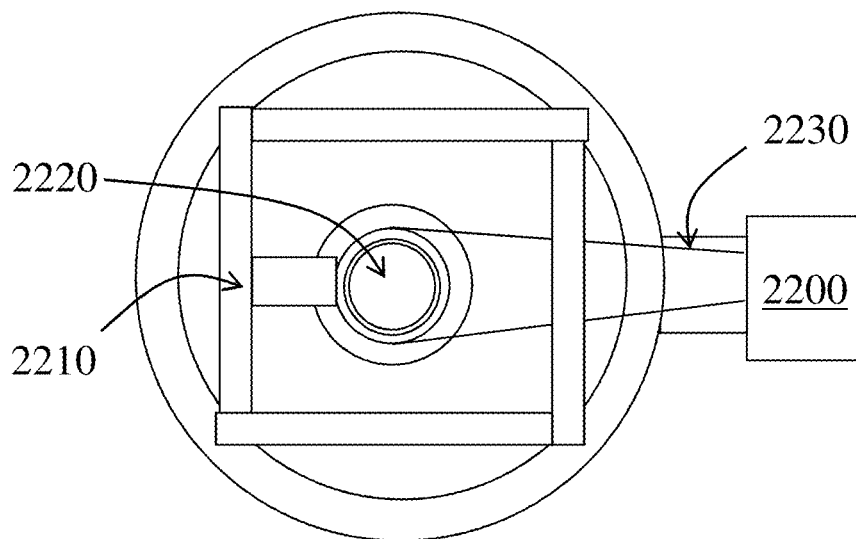


FIG. 22

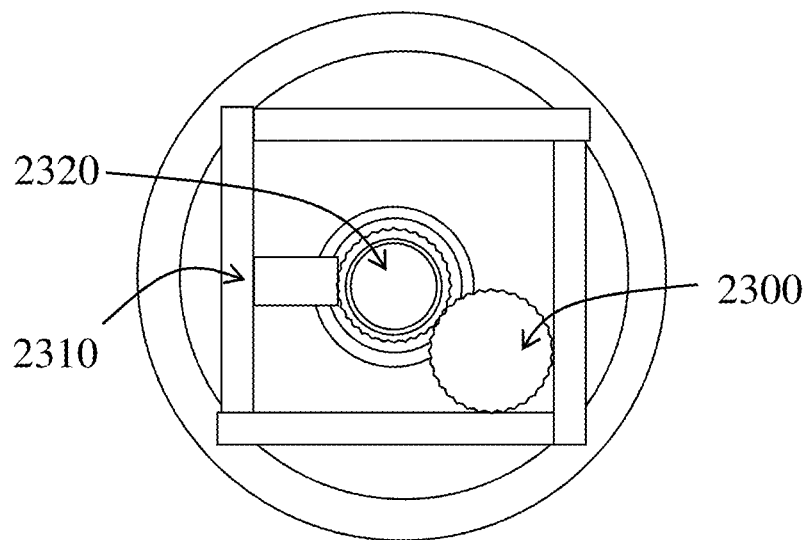


FIG. 23

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PIPE DEPLOYMENT TRAILER**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims the benefit, and priority benefit, of PCT International Patent Application Serial No. PCT/US2016/026673 filed Apr. 8, 2016 titled "Pipe Deployment Trailer", the disclosure of which is incorporated by reference herein in its entirety.

BACKGROUND

Flexible pipe is useful in a myriad of environments, including in the oil and gas industry. Flexible pipe may be durable and operational in harsh operating conditions and can accommodate high pressures and temperatures. Flexible pipe may be bundled and arranged into one or more coils to facilitate transporting and using the pipe.

Coils of pipe may be positioned in an "eye to the side" or "eye to the sky" orientation. When the flexible pipe is coiled and is disposed with its interior channel facing upwards, such that the coil is in a horizontal orientation, then the coils of pipe are referred to as being in an "eye to the sky" orientation. If, instead, the flexible pipe is coiled and disposed such that the interior channel is not facing upwards, such that the coil is in an upright or vertical orientation, then the coils of pipe are referred to as being in an "eye to the side" orientation.

The flexible pipe may be transported as coils to various sites for deployment (also referred to as uncoiling or unspooling). Different types of devices and vehicles are currently used for loading and transporting coils of pipe, but usually extra equipment and human manual labor is also involved in the process of loading or unloading such coils for transportation and/or deployment. Such coils of pipe are often quite large and heavy. Accordingly, there exists a need for an improved method and apparatus for loading and unloading coils of pipe.

SUMMARY

This summary is provided to introduce a selection of concepts that are further described below in the detailed description. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used as an aid in limiting the scope of the claimed subject matter.

In one aspect, embodiments of the present disclosure relate to a trailer, which may be used for loading, unloading, and deploying a coil of pipe. The trailer include a trailer base, a trailer bed pivotally mounted to the trailer base, at least one hydraulic actuator coupled to the trailer bed and the trailer base that raise and lower the trailer bed, the trailer bed being raised to a vertical position when the at least one hydraulic actuator is extended and the trailer bed being in a horizontal position when the at least one hydraulic actuator is retracted, and a lifting head protruding outwardly from the trailer bed, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed.

In another aspect, embodiments of the present disclosure relate to methods for manipulating a coil of pipe with a trailer that includes a trailer bed pivotally mounted to a trailer base and a lifting head disposed on the trailer bed, the lifting head having one or more arms protruding in an outwardly direction from the trailer bed. Methods may include adjusting a vertical position of the lifting head along

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the trailer bed to align the one or more arms of the lifting head with an interior channel extending through the coil of pipe and inserting the one or more arms of the lifting head through the interior channel of the coil of pipe to position the coil of pipe on the lifting head, wherein the coil of pipe and the trailer bed are in a vertical orientation during positioning the coil of pipe on the lifting head. The trailer bed may then be lowered to a horizontal orientation while the coil of pipe is positioned on the lifting head.

Other aspects and advantages of the claimed subject matter will be apparent from the following description and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram of a coil of pipe and a trailer according to embodiments of the present disclosure.

FIG. 2 is a diagram of a trailer bed raised to a vertical orientation according to embodiments of the present disclosure.

FIG. 3 is a diagram of a trailer configured to load a coil of pipe according to embodiments of the present disclosure.

FIG. 4 is a diagram of a trailer loaded with a coil of pipe operating according to embodiments of the present disclosure.

FIG. 5 is a diagram of a coil of pipe loaded on a trailer according to embodiments of the present disclosure.

FIG. 6 is a diagram of a trailer according to embodiments of the present disclosure.

FIG. 7 is a diagram of a reel of pipe according to embodiments of the present disclosure.

FIG. 8 is a diagram of a trailer and a reel of pipe according to embodiments of the present disclosure.

FIG. 9 is a diagram of a trailer that includes a set of rollers according to embodiments of the present disclosure.

FIG. 10 is a top end view of a trailer that includes a set of rollers with a slide table according to embodiments of the present disclosure.

FIG. 11 is a top end view of the trailer of FIG. 10 that includes a set of rollers with a slide table extended according to embodiments of the present disclosure.

FIG. 12 is a top end view of the trailer in FIG. 10 with the slide table extended and containment arms also extended according to embodiments of the present disclosure.

FIG. 13 is a side end view of the trailer of FIG. 10 with the trailer bed in a horizontal orientation according to embodiments of the present disclosure.

FIG. 14 is a side end view of the trailer of FIG. 10 with the trailer bed in a vertical orientation according to embodiments of the present disclosure.

FIG. 15 is a front end view of the trailer of FIG. 10 with the slide table extended according to embodiments of the present disclosure.

FIG. 16 is a diagram of trailer that includes a turntable according to embodiments of the present disclosure.

FIG. 17 is a diagram of a rear end view of the trailer in FIG. 16 that includes a turntable according to embodiments of the present disclosure.

FIG. 18 is perspective view of the trailer in FIG. 16 that includes a turntable according to embodiments of the present disclosure.

FIG. 19 is a side end view of the trailer in FIG. 16 with the trailer bed in a vertical orientation according to embodiments of the present disclosure.

FIG. 20 is a side view of a trailer that includes a retention component according to embodiments of the present disclosure.

FIG. 21 shows a magnified view of a motor attached to a trailer according to embodiments of the present disclosure.

FIG. 22 shows a diagram of a motor mounted to a trailer according to embodiments of the present disclosure.

FIG. 23 shows a diagram of a motor mounted to a trailer according to embodiments of the present disclosure.

DETAILED DESCRIPTION

Embodiments of the present disclosure relate generally to trailers for use in transporting and/or deploying coils of pipe. Coils of pipe may be self supported, for example, using bands to hold coils together, or coils of pipe may be supported around a reel (which may be referred to as a reel of pipe). Trailers according to embodiments of the present disclosure may include a lifting head protruding outwardly from and movable relative to the trailer bed, where the lifting head may be used to hold or support a coil of pipe. In some embodiments, a lifting head may radially expand or contract to fit within and support the inner diameter of a coil of pipe, or in embodiments where a coil of pipe is supported around a reel, a lifting head may radially expand or contract to fit within and support the inner diameter of the reel of pipe. In some embodiments, a lifting head may include a single lifting arm (sometimes referred to as a “carpet pole”), which may be inserted through the inner diameter of a coil of pipe or reel of pipe.

Embodiments of the present disclosure will be described below with reference to the figures. In one aspect, embodiments disclosed herein relate to embodiments for a trailer configured to transport coils of flexible pipe to various sites.

As used herein, the term “coupled” or “coupled to” may indicate establishing either a direct or indirect connection, and is not limited to either unless expressly referenced as such. The term “set” may refer to one or more items. Wherever possible, like or identical reference numerals are used in the figures to identify common or the same elements. The figures are not necessarily to scale and certain features and certain views of the figures may be shown exaggerated in scale for purposes of clarification.

FIG. 1 shows a diagram of a coil of pipe and a trailer according to embodiments of the present disclosure. According to embodiments of the present disclosure, trailer 112 is provided which may be used to load and deploy coil of pipe 102.

Coil of pipe 102 may be formed by wrapping pipe into a coil with an interior channel 104 formed axially there-through, where the coil of pipe 102 may be moved as a single package or bundle of coiled pipe, as shown in FIG. 1. Each complete turn of coiled pipe may be referred to as a wrap of pipe. Multiple wraps of pipe in a coil of pipe may be configured in columns along an axial dimension of the coil of pipe and/or configured in layers along a radial dimension of the coil of pipe. For example, multiple columns of wraps may be formed along an axial direction of the coil of pipe, where the axial dimension of the coil of pipe is based on the diameter of the pipe and the number and axial position of wraps forming the coil of pipe 102. Further, multiple layers of wraps may be formed along a radial direction of the coil of pipe, where the radial dimension of the coil of pipe is based on the diameter of the pipe and the number and radial position of the wraps forming the coil of pipe. In one or more embodiments, coil of pipe 102 may be disposed on a reel, such as reel 702, which is further discussed below in FIG. 7. In one or more embodiments,

trailer 112, (as shown in any of the figures included in the present disclosure) may be configured to load or unload a reel such as reel 702.

As shown in FIG. 1, coil of pipe 102 may be one or more layers (e.g., layers 108 and 110) of pipe packaged or bundled into a larger coil. Coil of pipe 102 may include at least one or more layers of pipe that have been coiled into a particular shape or arrangement. As shown in FIG. 1, coil of pipe 102 is coiled into a substantially cylindrical shape having substantially circular bases 103 and 105 formed on each end of coil of pipe 102, where the axial dimension of coil of pipe 102 is measured between the two bases 103, 105.

A pipe, as understood by those of ordinary skill, may be a tube to convey or transfer any water, gas, oil, or any type of fluid known those skilled in the art. The pipe used to make up coil of pipe 102 may be made of any type of materials including without limitation plastics, metals, a combination thereof, composites (e.g., fiber reinforced composites), or other materials known in the art.

In one or more embodiments, the pipe used to make up coil of pipe 102 may be a flexible type of pipe. Flexible pipe is used frequently in many applications, including without limitation, both onshore and offshore oil and gas applications. Flexible pipe may include Flexible Composite Pipe (FCP) or Reinforced Thermoplastic Pipe (RTP). A FCP RTP pipe may itself be generally composed of several layers. In one or more embodiments, a flexible pipe may include a high-density polyethylene (“HDPE”) pipe having a reinforcement layer and an HDPE outer cover layer. Thus, flexible pipe may include different layers that may be made of a variety of materials and also may be treated for corrosion resistance. For example, in one or more embodiments, pipe used to make up a coil of pipe may have a corrosion protection shield layer that is disposed over another layer of steel reinforcement. In this steel reinforced layer, helically wound steel strips may be placed over a liner made of thermoplastic pipe. Flexible pipe may be designed to handle a variety of pressures. Further, flexible pipe may offer unique features and benefits versus steel/carbon steel pipe lines in the area of corrosion resistance, flexibility, installation speed and re-usability.

Coils of pipe may be made with coil having an outer diameter ranging, for example, from about 2 inches (5.1 cm) to about 10 inches (25.4 cm). However, pipe having other dimensions may be coiled to form a coil of pipe and loaded to trailers according to embodiments of the present disclosure. Accordingly, pipe that that may be spooled or coiled into coil of pipe 102 may be made to suite a number of dimensions and may have any diameter useful to a particular project.

As known to those of ordinary skill in the art, pipe used to make up coil of pipe 102 may be coiled using spoolers or other coiler machines suited for such a function. Those of ordinary skill will recognize that the present disclosure is not limited to any particular form of coiler or other device that may be used to form pipe into a coil. Coiling pipe into a coil of pipe, such as 102, assists when transporting pipe, which may be several hundred feet in length in one or more embodiments. Further, coil of pipe 102 may be assembled as a coil to facilitate deployment of the coil. Deployment, as described above and used herein, may refer to the action of unspooling or unwinding the pipe from coil of pipe 102.

After being assembled into a coil, coil of pipe 102 may include an interior channel 104 formed axially through the coil of pipe 102. Interior channel 104 is a bore disposed generally in the center of coil of pipe 102. Interior channel 104 is substantially circular shaped. The coil of pipe 102

may have an outer diameter (OD) and an inner diameter (ID), where the inner diameter is defined by the interior channel.

In one or more embodiments, coil of pipe **102** may have an outer diameter ranging from about 92 inches (2.3 m), which may occur, for example, when coil of pipe **102** has at least two layers of 2 inch pipe, to about 192 inches (4.9 m). In one or more embodiments, a coil of pipe may have an inner diameter ranging, for example, from about 84 inches (2.1 m) to about 126 inches (3.2 m). Further, in one or more embodiments, a coil of pipe may have an axial dimension (width) ranging from about 5 inches (12.7 cm) to about 92 inches (2.3 m). However, these are merely exemplary measurements. Those of ordinary skill in the art will appreciate that any range of dimensions (inner and outer diameters and width) may be accommodated using one or more embodiments of trailer **112**.

Skid **106** illustrated in FIG. **1** may be a platform upon which coil of pipe **102** may be disposed to hold the coil of pipe **102** in a vertical orientation. In one or more embodiments, coil of pipe **102** may be loaded and unloaded by trailer **102** while remaining on skid **106**. In other embodiments, coil of pipe **102** may be disposed upon a reel, as further described below in FIGS. **7** and **8**.

In one or more embodiments, trailer **112** may be connected or attached to another vehicle (not shown). The other vehicle may be configured to move trailer **112**. As shown in FIG. **1**, trailer **112** may include a set of wheels **114**. FIG. **1** shows two wheels (**114**) disposed on either side of trailer **112**. Those of ordinary skill in the art will appreciate that any number of wheels may be disposed along trailer **112**. Further, any number of wheels may be disposed at the front or the rear of the trailer. Thus, according to one or more embodiments, trailer **112** is a mobile, transport unit that may be used to load and unload coil of pipe **102**, as well as to transport coil of pipe **102** from one site to another. Trailer **112** may be moved/towed in a direction towards or away from coil of pipe **102** when coil of pipe **102** is not already loaded onto trailer bed **112**.

In one or more embodiments, a trailer connection point provided on trailer **112** may be a hitch, such as a draw bar hitch. A draw bar hitch may be a type of tow hitch that includes a ball extending from a bar and configured to secure a hook or a socket combination for the purpose of towing or being towed. Those of ordinary skill in the art will appreciate that other types of tow hitches and attachment systems may be used to attach another vehicle to trailer **112**.

Accordingly, a vehicle (not shown) may be fitted with a connector or attachment system known to those of ordinary skill in the art for connecting to trailer **112**. In one or more embodiments, a vehicle used to tow trailer **112** may include without limitation, a dozer, a front end loader, or excavator, for example, when trailer **112** is fully loaded with one or more coils of pipe **102**, or by standard trucks, automobiles, or other vehicles, for example, when trailer **112** is in an unloaded state (i.e. is not carrying any coils of pipe, such as coil of pipe **102**). Trailer **112** may be further designed for off-road use, such that wheels **114** are also designed for off-road use. Thus, trailer **112** may be adapted for use with many types of roads and terrains.

In addition, trailer **112** may include built-in skid protection that also serves use as a sled on soft terrain. For example, in some embodiments, a trailer may include a metal plate on its undercarriage, under the base of the trailer, where the metal plate may be lifted from the ground to provide protection at the underside of the trailer and may optionally be lowered to the ground to act as a sled runner.

Furthermore, in one or more embodiments, trailer **112** may have a continuous track (also called tank tread or caterpillar track) to allow for propulsion of trailer **112** using a continuous band of treads or track plates. Thus, in one or more embodiments, a continuous band of treads or track plates may be disposed along either side of trailer base **116** around wheels **114** (any number of wheels **114** as needed). Further, in one or more embodiments, this band of treads or track plates may be made from modular steel plates. The large surface area of the tracks may help to distribute the weight of the vehicle better than steel or rubber tires and also provides added traction, which may also enable a trailer that is track driven, e.g. trailer **112**, to traverse soft ground with less likelihood of becoming stuck due to sinking.

In some embodiments, trailer **112** may include a control unit for moving trailer **112** in any direction. In one or more embodiments, trailer **112** may be a self-driven unit.

According to one or more embodiments of the present disclosure, trailer **112** may range in size from 12 feet (3.7 m) to 16 feet (4.9 m). However, those of ordinary skill in the art will appreciate that trailer **112** may be of varying sizes and dimensions other than those listed above.

In one or more embodiments, coil of pipe **102** may be oriented in either an "eye to the side" (vertical) or "eye to the sky" (horizontal) orientation. As shown in FIG. **1**, coil of pipe **102** is oriented in an "eye to the side" position such that it is at a vertical orientation (i.e. upright). In other words, when in an "eye to the side" orientation, interior channel **104** is not facing upwards. In an "eye to the sky" orientation (e.g., shown in FIG. **5**), an opening to the interior channel **104** of the coil of pipe **102** may be facing upwards such that the coil of pipe **102** is longer in an upright position. In other words, coil of pipe **102** rests on one of its circular bases **103**, **105** and is in a horizontal orientation.

[In accordance with one or more embodiments disclosed herein, coil of pipe may be "self-loaded" from an "eye to the side" position (e.g., as shown in FIG. **1**) to an "eye to the sky" position (e.g., as shown in FIG. **5**) using a trailer according to embodiments of the present disclosure. A trailer according to embodiments of the present disclosure capable of self-loading a coil of pipe from an eye to the side position to an eye to the sky position may include a trailer bed pivotally mounted to a trailer base, at least one hydraulic actuator coupled to the trailer bed and the trailer base and configured to raise and lower the trailer bed, and a lifting head protruding outwardly from the trailer bed, where the lifting head position is adjustable with respect to the trailer bed.

For example, as shown in FIGS. **1-6**, a trailer **112** may include trailer bed **120** pivotally mounted to a trailer base **116**, such that trailer bed **120** is configured to tilt with respect to trailer base **116**. Trailer bed **120** may be actuated to transition from being in a fully horizontal orientation (e.g., as shown in FIG. **1**) to a fully vertical orientation (e.g., as shown in FIG. **2**), where the fully vertical orientation is 90 degrees from the fully horizontal orientation. Also, trailer bed **120** may be configured to tilt to a partially vertical position (e.g., as shown in FIG. **4**). In one or more embodiments, trailer bed **120** may be configured to tilt to and stay at an angle relative to the trailer base **116** ranging from, for example, 0 degrees (fully horizontal orientation and parallel with trailer base **116**) to 90 degrees (fully vertical orientation), and in some embodiments, beyond 90 degrees relative to the trailer base **116**, e.g., up to 180 degrees.

As shown in FIG. **2**, trailer bed **120** may be raised or tilted to a fully vertical orientation (90 degrees from a fully horizontal orientation) and configured to operate in accor-

dance with one or more embodiments of the present disclosure. The trailer bed **120** may be tilted with respect to the trailer base **116** using one or more actuators coupled to and extending between the trailer bed **120** and the trailer base **116**.

For example, in one or more embodiments, trailer **112** may include one or more hydraulic cylinders **122**. A set of hydraulic cylinders **122** may be a mechanism for moving the trailer bed **120** from a horizontal to vertical upright orientation and vice versa. Hydraulic cylinder **122** may also be referred to as a linear hydraulic motor, and is a type of mechanical actuator. In one or more embodiments, a set of hydraulic cylinders **122** may be hydraulically powered by a hydraulic power unit (HPU) (not shown). As understood in the art, an HPU may be used to power one or more hydraulic cylinders **122** may be powered by fuel (e.g. gasoline or diesel) and may include a number of hydraulic controls that are easily accessible. In one or more embodiments, an HPU may be located upon trailer bed **120** or on the trailer base **116** in a position for easy maintenance and replacement. Those of ordinary skill will appreciate that other systems and mechanisms for raising and lowering trailer bed **120** with respect to the trailer base **116** may be used including mechanical, pneumatic, electronic, and/or magnetic actuating systems.

As shown in FIG. 6, in one or more embodiments, cantilever arms **604** may be coupled to hydraulic cylinders **122**. Cantilever arms **604** may be coupled to trailer base **116** and used to raise and lower trailer bed **120** when hydraulic cylinders **122** are energized. Those of ordinary skill will appreciate that other lifting members, other than cantilever arms **604** may be utilized.

Further, in one or more embodiments, lifting head **118** may be disposed on trailer bed **120** and protrude outwardly from the trailer bed **120**. A lifting head may protrude perpendicularly or non-perpendicularly and in a general outwardly direction away from a surface of a trailer bed, e.g., where a central axis of the lifting head extends outwardly from the trailer bed at an angle ranging from, for example, ± 5 degrees, ± 10 degrees or ± 15 degrees from perpendicular to the trailer bed. For example, in some embodiments, the lifting head **118** may protrude perpendicularly from the trailer bed **120**, where upon raising trailer bed **120** to a fully vertical orientation (e.g., as shown in FIG. 2), lifting head **118** protrudes horizontally from the trailer bed **120**, such that lifting head **118** is parallel to the trailer base **116**. In embodiments having the lifting head **118** protruding perpendicularly from the trailer bed **120**, when the trailer bed **120** is in a fully horizontal orientation (e.g., as shown in FIG. 1), lifting head **118** protrudes vertically from the trailer bed **120**, such that lifting head **118** is also perpendicular to the trailer base **116**.

A lifting head as described herein may be a structure used to lift and support a coil of pipe **102** or a reel **702** (as shown in FIGS. 7 and 8). Thus, a lifting head, such as lifting head **118** may include one or more arms members protruding from the trailer bed **120** to engage with a coiled pipe structure, such as the arm assembly shown in FIG. 2 or the shaft **802** shown in FIG. 8.

As shown in FIG. 2, lifting head **118** may include one or more arm members, such as arm members **124**, **126**, and **128**. Arm members may be circumferentially spaced about a central axis of the lifting head, may be linearly spaced about the lifting head, and/or may extend along the central axis of the lifting head (e.g., in embodiments having a lifting head with a single arm member or shaft protruding from the trailer bed, the single arm member may extend in-line with

the central axis of the lifting head). For example, in the embodiment shown in FIG. 2, arm members **124** and **126** are aligned and disposed along a common linear position on the lifting head **118**, and arm member **128** is disposed at second linear position linearly spaced from arm members **124** and **126**. As shown in FIG. 2, arm **128** is disposed beneath arm members **124** and **126**, but also at a midway point between arm members **124** and **126**, such that the arm members **124**, **126**, and **128** are arranged to form a substantially triangular shaped arm assembly. The arm members **124**, **126** and **128** may be in a fixed position or may be adjustable. For example, the linear spacing between arm members **124**, **126** at the common linear position and arm member **128** at the second linear position may be adjusted to move the arm members **124**, **126** apart from or closer to the arm member **128**.

Those of ordinary skill in the art will appreciate that additional arm members and components may be added to lifting head **118** in accordance with the present disclosure, or a reduced number arm members may also be utilized in accordance with the present disclosure. For example, as shown in FIG. 6, in one or more embodiments, lifting head **118** may include four arm members, **124**, **125**, **126**, **128**, to form a substantially rectangular shaped arm assembly. In some embodiments, more than four arm members may be circumferentially spaced around a central axis of a lifting head. Further, in some embodiments, two arm members may be in a spaced apart configuration on a lifting head. In embodiments having two or more arm members protruding from a lifting head, the spatial distance between the arm members may be adjusted to reduce spacing there between and/or to increase spacing there between, for example, to fit within an interior channel of a coil of pipe and/or to engage an inner diameter of the interior channel of a coil of pipe.

In one or more embodiments, the arms of lifting head **118** may be adjustable to support a range of inner diameters of coil of pipe **102**. Different coils of pipe may have differing interior channels defining different inner diameters. Accordingly, the arms of lifting head **118** may be capable of being expanded and retracted linearly to fit an inner diameter of coil of pipe **102**. For example, arm member **124** and **126** may be transversely spaced apart and may be configured to extend outwards and inwards over a certain range of distance. Further, either arm member **124** or **126** or both may be individually adjusted so as to be positioned closer to or farther away from one another. The linear position of arm members **124** and **126** may be accomplished through any mechanical means known to those of ordinary skill in the art.

In one or more embodiments, lifting head **118** may be movably coupled to trailer bed **120**, such that the position of the lifting head **118** may be adjusted relative to the trailer bed **120**. For example, as shown in FIG. 2, a lifting head **118** may be coupled to a track **132** extending along a longitudinal axis of the trailer bed **120**, where the lifting head **118** engages with and is movable along the track **132** to adjust the position of the lifting head **118** on the trailer bed **120**.

Lifting head **118** may be movably coupled to track **132** via a lifting head base. For example, a lifting head base may be inserted into track **132** and slidable or otherwise movable along the track to adjust a position of lifting head **118** with respect to the trailer bed **120**. In one or more embodiments, a lifting head base may be positioned on track **132** to be substantially in between a pair of track beams **131** and **133**. The pair of track beams **131** and **133** may be configured to define the open channel of track **132**. In one or more embodiments, pair of track beams **131** and **133** may be provided along a width of trailer bed **120** and extend along

a length of the trailer bed **120**. As shown in FIG. 2 and further shown in greater detail in FIG. 6, in one or more embodiments, the track **132** may extend along a longitudinal axis of the trailer bed **120**, such that the lifting head **118** may be capable of being repositioned along the longitudinal axis of trailer **112**.

In one or more embodiments, a lifting head base may be mechanically or automatically positioned and repositioned as needed along track **132**. In one or more embodiments, a lifting head base may be coupled to one or more mechanisms for sliding along track **132**. Those of ordinary skill in the art will appreciate that other mechanisms may be utilized as well.

As shown in FIG. 2, a trailer bed **120** may include a number of support bars **134** and/or beams extending between one or more edges of the trailer bed **120** defining an outer perimeter of the trailer bed **120**. In one or more embodiments, support bars **134** may extend between track **132** formed along a length of the trailer bed **120** to one or more edges of the trailer bed **120**.

Trailer bed **120** has a number of slots and openings defined by the one or more support bars **134** used to make up trailer bed **120**. This exemplary arrangement of bars and beams with the slots in between may provide additional useful advantages. For example, such a configuration of trailer **112** as shown in FIG. 2 may provide sufficient space for an operator of trailer **112** to tie down any loose layers of pipe (e.g. layers **108** and **110**) using any type of tie downs or bands known in the art. Alternatively, in other embodiments, trailer bed **120** may be a substantially solid piece without slots or openings except for track **132** so that lifting head **118** may be movable along track **132**.

It is noted that while not shown in the Figures, it is in keeping with the present disclosure for any number of tie downs and straps to be used. Tie downs and straps may be tied around different sections of coil of pipe **102** to further secure the layers of coil of pipe **102** to prevent the layers from unspooling or falling over one over. Such tie downs and straps may be used while coil of pipe **102** is in an "eye to the side" or "eye to the sky" orientation. In one or more embodiments, a ratchet strap (not shown) may be used to tie down any loose layers of pipe or any uncoiled remaining pipe that may be present at the ends of coil of pipe **102**.

A method for loading and/or unloading a coil of pipe may include using a trailer according to embodiments of the present disclosure. For example, methods of the present disclosure may include providing a trailer having a trailer bed pivotally mounted to a trailer base and a lifting head disposed on the trailer bed, the lifting head having one or more arms protruding in an outwardly direction from the trailer bed. A coil of pipe may be positioned on the lifting head when the coil of pipe and trailer bed are in a vertical orientation by adjusting a vertical position of the lifting head along the trailer bed to align the one or more arms of the lifting head with an interior channel extending through the coil of pipe and inserting the one or more arms of the lifting head through the interior channel of the coil of pipe. The trailer bed may then be lowered to a horizontal orientation while the coil of pipe is positioned on the lifting head to move the trailer loaded with the coil of pipe.

FIGS. 1-5 show stages of loading a coil of pipe **102** onto a trailer **112** according to methods of the present disclosure. However, one of ordinary skill in the art will appreciate that additional steps may be added to and/or some steps may be omitted from the steps shown in FIGS. 1-5.

As shown in FIG. 1, trailer **112** is in an unloaded state whereby trailer bed **120** is in a fully horizontal orientation,

such that trailer bed **120** is parallel to trailer base **116** and lifting head **118** does not have a coil of pipe **102** positioned thereupon.

As shown in FIG. 2, trailer bed **120** may be raised from the trailer base **116** using one or more actuators coupled to the trailer bed **120** and the trailer base **116**. The trailer bed **120** may be raised to a vertical orientation where the lifting head **118** protrudes from the trailer bed **120** in a direction substantially parallel with the trailer base **116**. The lifting head **118** may be aligned with an interior channel **104** of the coil of pipe **102** by adjusting the position of the lifting head **118** along the trailer bed **120** to a shared vertical position (or height from the ground) with the interior channel **104**.

As shown in FIG. 3, when protruding arm member(s) of the lifting head **118** is aligned with the interior channel **104** of a vertically oriented coil of pipe **102**, the trailer **112** may be moved toward the coil of pipe **102** to insert the lifting head **118** into the interior channel **104** of the coil of pipe **102**.

As previously described, in one or more embodiments, trailer **112** may be operated by a vehicle connected to trailer **112**. Such a vehicle may be used to back up trailer **112** to position trailer **112** close enough to coil of pipe **102** such that an assembly **118** extends through interior channel **104**. Those of ordinary skill will appreciate that trailer **112** may also be pulled, pushed, or otherwise acted upon in order to position trailer **112** at a desired position so as to be able to load coil of pipe **102** onto trailer **112**. In other embodiments, coil of pipe **102** may be brought toward trailer bed **120** and positioned onto lifting head **118**. When inserted into the interior channel **104**, the lifting head **118** may fully support the coil of pipe **102**. The coil of pipe **102** may be freestanding in a vertical orientation or may be held by one or more mechanical mechanisms.

In accordance with one or more embodiments, trailer bed **120** has been raised to a fully vertical orientation, such that one or more hydraulic actuators configured to raise the trailer bed **120** is extended. As shown in FIG. 3, coil of pipe **102** may be loaded onto the lifting head **118** of trailer **112** while still disposed on skid **106**. In one or more embodiments, coil of pipe **102** may be loaded onto arm assembly **118** of trailer **112** without being disposed on skid **106**.

It is noted that lifting head **118** is positioned to be able to fit within the dimensions of interior channel **104** of coil of pipe **102**. If an operator of trailer **112** needs to adjust the vertical position of lifting head **118**, in one or more embodiments, lifting head **118** may be adjusted through automatic or mechanical means. Further, in embodiments having a lifting head with more than one arm member, the arm members of lifting head **118** may be adjusted in a manner to best fit the interior channel **104**, for example, by spacing the arm members farther apart or closer together.

Upon loading the coil of pipe **102** onto the lifting head **118**, such that the lifting head **118** supports and holds the coil of pipe **102**, the lifting head **118** together with the loaded coil of pipe **102** may be moved with respect to the trailer bed **120** by adjusting the vertical position of the lifting head **118** along the trailer bed **120** (e.g., along a track extending longitudinally along the trailer bed, such as shown in FIG. 2).

FIG. 4 shows coil of pipe **102** loaded onto trailer bed **120** (via the lifting head **118**) while trailer bed **120** is partially raised from the trailer base **116**. By virtue of lifting head **118**, coil of pipe **102** is retained to the trailer bed **120**, i.e. supported and held by lifting head **118**, while trailer bed **120** is being lowered back towards a horizontal orientation. Also, as previously described, tie downs and/or other securing

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means may be used in conjunction with lifting head **118** and trailer bed **120** to retain the coil of pipe **102** to the trailer bed **120**.

FIG. 5 shows coil of pipe **102** in an “eye to the sky” orientation and trailer bed **120** in a fully horizontal position while loaded with coil of pipe **102**. Trailer **112** is now loaded with the coil of pipe **102** and may be moved from one location to another with coil of pipe **102** in such an orientation. Also, those of ordinary skill will appreciate, that trailer **112** may be moved (e.g., driven away or towed away) while trailer bed **120** is in vertical orientation (e.g., as shown in FIGS. 2 and 3).

Unloading of coil of pipe **102** may be accomplished by reversing the loading process. To unload coil of pipe **102**, trailer bed **120** may be raised (e.g. hydraulically lifted using hydraulic cylinders **122** or using one or more other types of actuators) and the orientation of coil of pipe **102** changed in this manner from an “eye to the sky” to an “eye to the side” orientation. Accordingly, lifting head assembly **118** may be moved or repositioned along the trailer bed **120** as necessary to position the coil of pipe **102** as desired. In one or more embodiments, coil of pipe **102** may be unloaded directly onto the ground by lowering lifting head **118** to a position suitable for unloading coil of pipe **102** to the ground level. Further, coil of pipe **102** may be unloaded onto any type of additional trailer (e.g. lowboy trailer) or vehicle from trailer **112**. This may be accomplished by using the tilting actions of trailer bed **120** as well as the repositionable lifting head **118** to unload coil of pipe **102** onto a surface of another trailer or vehicle. The trailer **112** may then be moved away from the now upright, “eye to the side” coil of pipe **102** after unloading from trailer bed **120**.

Embodiments of the present disclosure may include a trailer having at least one actuator configured to raise and lower a trailer bed having a lifting head disposed thereon, such as shown in the embodiments of FIGS. 1-6, or a trailer may have at least one actuator configured to raise and lower a lifting head apart from the trailer bed. For example, according to embodiments of the present disclosure, a trailer may include a trailer base, a trailer bed (either pivotally or non-pivotally mounted to the trailer base), and a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation (e.g., in a horizontal orientation), where the position of the lifting head is adjustable along a longitudinal axis of the trailer bed. At least one actuator may be coupled to the trailer base and either the trailer bed or the lifting head. When the actuator(s) is in an actuated state, the lifting head may be raised to a second orientation (e.g., a vertical orientation) by the actuator(s), and when the actuator(s) is in a non-actuated state, the lifting head may be in the first orientation (e.g., horizontal orientation).

For example, when an actuator is coupled to a trailer base and a lifting head, the lifting head may be raised or lowered independently of the trailer bed. When an actuator coupled between the trailer base and the lifting head is in an actuated state (e.g., expanded or retracted), the lifting head may be moved from a first orientation to a second orientation apart from the trailer bed and the trailer base. When an actuator is coupled to a trailer base and a trailer bed (on which a lifting head is disposed), the lifting head may be raised or lowered together with the trailer bed. When an actuator coupled between the trailer base and the trailer bed is in an actuated state (e.g., expanded or retracted), the trailer bed and attached lifting head may be moved from a first orientation to a second orientation apart from the trailer base.

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Turning to FIG. 7, FIG. 7 illustrates an embodiment of a reel **702** of pipe. In many instances, a coil of pipe **102** may be wound around the components of a reel, such as reel **702**, instead of transported as a bundled, freestanding package (e.g., as shown in FIG. 2). The coil of pipe may be wound around a reel such that the interior channel of the coil of pipe is concentric with a central bore of the reel. A reel as understood by those of ordinary skill may include a cylindrical drum, such as cylindrical drum **710**, around which layers of pipe may be wrapped to form a coil of pipe, such as coil of pipe **102**. Reel **702** may include two substantially circular reel ends **706** and **708** that are capable of turning about a shared axis. Accordingly, reel ends **706** and **708** may be attached to cylindrical drum **710**.

As shown in FIG. 7, a bore **704** is disposed in each end **706** and **708** at a substantially central position. In addition, the bores **704** for each end **706** and **708** are substantially aligned with each other (and may also be aligned with a central axis of cylindrical drum **710**). Pipe **712** (e.g. flexible pipe) may be wound around cylindrical drum **710** using any means known to those of ordinary skill in the art.

FIG. 8 illustrates an embodiment of a trailer **812** that may be used in conjunction with loading, unloading, and deploying a reel of pipe, such as reel **702**. In one or more embodiments, shaft **802** may be disposed on and/or coupled to trailer bed **820** via a lifting head base, as shown in FIG. 8. In one or more embodiments, shaft **802** may be configured to act as a spike or pole that protrudes outwardly from trailer bed **820**. Further, shaft **802** may be disposed perpendicular to or substantially perpendicular to trailer bed **820**.

Shaft **802** may be used to support reel **702** upon being inserted into a central bore of reel **702**. In addition, shaft **802** may be attached to an adjustable lifting head base that is configured to move either up or down track **832** of trailer bed **820**. This may be beneficial in locating shaft **802** at a position along track **832** and trailer bed **820** that is most suitable for properly loading and unloading reel **702**. Accordingly, according to one or more embodiments provided herein, coil of pipe **102** may be disposed on reel **702**, and may be loaded and unloaded onto trailer **812**. In addition, pipe **712** wound around reel **702** may be deployed directly from reel **702** while loaded onto shaft **802** and still loaded on trailer **812**.

A method in accordance with one or more embodiments for loading reel **702** onto shaft **802** is described below. Reel **702** and shaft **802** may be positioned so as to be within a suitable distance from one another. In one or more embodiments, trailer **812** may be positioned proximate to reel **702** by moving trailer **812** towards reel **702**. Alternatively, reel **702** may be moved to be proximate to trailer **812**.

Trailer bed **820** may be raised to a fully vertical orientation (as shown in FIG. 8) such that shaft **802** protrudes outwardly from one side of the trailer bed **820** and shaft **802** is substantially parallel with a longitudinal axis of trailer base **816**. As shown in FIG. 8, reel **702** may be positioned so that reel end **706** is the proximal end that faces trailer bed **820** and also faces shaft **802**. In one or more embodiments, shaft **802** may be inserted into bore **704** of end **706** so as to pass through the central bore of cylindrical drum **710** (shown in FIG. 7), and extend completely through the bore **704** of the distal end **708**. In the above-described method, shaft **802** is inserted into a central bore of reel **702**. The shaft **802** may be inserted partially through the central bore of reel **702** or completely through the central bore of reel **702** from one end **706** to opposite end **708** of reel **702**. In other embodiments, reel **702** may be pushed onto shaft **802** by

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positioning proximal end **706** onto shaft **802** (i.e. through bore **704** of end **706**) and urging the remainder of reel **702** onto shaft **802**.

Shaft **802** may be repositionable if needed in an up and down direction along track **832** so as to aligned with and fit within bore **704** of reel **702**. After the reel **702** of pipe has been mounted to the shaft **802**, trailer bed **820** may be lowered to a horizontal orientation using one or more actuators, e.g. hydraulic cylinders, to lower the trailer bed **820** towards trailer base **816**. Accordingly, trailer **812** may be transported to other locations while fully loaded with reel **702** of pipe. In some embodiments, a trailer may include a lifting head having multiple arm members (instead of shaft **802**) that has been configured to be insertable within a central bore of a reel of pipe so as to support and hold the reel of pipe, such as reel **702**.

In one or more embodiments, deployment of pipe **712** from reel **702** may be achieved while reel **702** is still loaded on trailer bed **820** and supported by shaft **802**. To deploy pipe **712** from reel **702** while reel **702** is still loaded, the trailer bed **820** may be configured to be in a vertical or a horizontal orientation as needed.

It is noted that there are other instances whereby coils of pipe may be transported and/or deployed without using a reel. For example, U.S. Pat. No. 8,985,496, which is incorporated for reference in its entirety, and is also assigned to the present assignee, discloses an expandable drum assembly that may be used for storing, transporting, or deploying coils of flexible pipe. Accordingly, in one or more embodiments, it may be feasible to utilize an expandable drum assembly as described in one or more embodiments of U.S. Pat. No. 8,985,496 instead of a reel, such as reel **702**. A trailer according to embodiments of the present disclosure having a trailer bed pivotally mounted to a trailer base and a lifting head adjustably positioned on the trailer bed may be used to load, unload and/or deploy pipe from an expandable drum assembly, where a protruding portion of the lifting head may be inserted into a central bore of the expandable drum assembly to support and hold the expandable drum assembly to the trailer bed.

Turning to FIGS. 9-15, several views are provided of a trailer having a set of rollers that may be used in accordance with one or more embodiments of the present disclosure. FIG. 9 provides a perspective view of trailer **912**; FIGS. 10-12 show top views of trailer **912**; FIGS. 13 and 14 show side views of trailer **912**; and FIG. 15 shows a front view of trailer **912** in raised or lifted position. In one or more embodiments, trailer **912** may be used in accordance with the description provided above for trailer **112** and may include any of the features/functions of trailer **112**.

Trailer **912** includes a set of rollers **902**. Set of rollers **902** may be roller units arranged on a surface of trailer bed **920** that are capable of rotational movement and are configured to act as supports for a coil of pipe when mounted to the trailer bed **920**. The coil of pipe may bear against rollers **902** and urged to turn while disposed upon rollers **902**. Set of rollers **902** may be configured in multiple orientations, shapes, and sizes, and are not limited to the generally cylindrical shape depicted in FIGS. 9-15. In one or more embodiments, other types of mechanisms as known to those of ordinary skill may be used in place of rollers **902** which are capable of turning or rotational movement. For example, multiple wheels may be used and may be coupled to trailer bed **920**. Further, in one or more embodiments, set of rollers **902** are fixed in place. For example, set of rollers **902** may be rotationally affixed to trailer bed **920** (such that the rollers may rotate but remain in a fixed location along the trailer bed

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920) using bolts, screws, or any suitable means known to those of ordinary skill in the art to affix rollers **902** in place.

According to one or more embodiments, a set of rollers **902** may extend along the trailer bed **920** in a radial direction from a central reference point **934** (as shown in FIGS. 10-12) to one or more edges **936** defining an outer perimeter of trailer bed **920**. Central reference point **934** may be located a distance along a length of the trailer bed, where the length of the trailer bed extends along a longitudinal axis of the trailer bed from a base edge **923** at an end of the trailer bed pivotally mounted to the trailer base to an upper edge **925** at an opposite end of the trailer, wherein the distance is greater than a radius of a coil of pipe.

In some embodiments, such as shown in FIGS. 10-12 and 15, central reference point **934** may be located along a track **932** formed in the trailer bed **920**, such that rollers **902** are positioned to radially extend away from track **932** and to one or more edges (e.g. **936**) of the trailer bed. In one or more embodiments, rollers **902** are retained within the outer perimeter of trailer bed **920**. While the embodiment shown in FIGS. 9-15 includes a number of rollers forming set of rollers **902**, those of ordinary skill will appreciate that a greater or lesser number of rollers may be disposed and arranged as desired. For example, six, eight, or more rollers may be arranged circumferentially around a central reference point, extending in a direction radially outward from the central reference point.

A central reference point may be a distance along the length of the trailer bed **920** that may best accommodate larger sized coils of pipe so that the full outer diameter of the coil of pipe may fit within the length of the trailer bed **920**. In some embodiments, the outer diameter of a coil of pipe to be loaded on a trailer bed may be smaller than and fit within the outer perimeter of the trailer bed. According to embodiments of the present disclosure, a central reference point may be a distance from a base edge of the trailer bed greater than the radius of a coil of pipe to be loaded on the trailer bed. In some embodiments, a central reference point may be at a distance along a middle portion of the trailer bed, the middle portion extending within 5 percent, 10 percent or 20 percent the length of the trailer bed from the half point of the length of the trailer bed. In one or more embodiments, trailer **912**, (as shown in any of the figures included in the present disclosure) may be configured to load or unload a reel such as reel **702**.

A benefit of having an adjustable lifting head **918** (whether the lifting head includes an arm assembly or a shaft, such as shaft **802**) is that the lifting head **918** may be raised or lowered to the central reference point of trailer bed **920** so as to position a coil of pipe (e.g., reel **702** of pipe or coil of pipe **102**) on top of the set of rollers **902**. For example, there may be circumstances whereby a coil of pipe (e.g., reel **702** of pipe) is initially located at a position along the trailer bed **920** that is not at the same as the central reference point between a fixed set of rollers **902**. Upon mounting the coil of pipe to the adjustable lifting head **918**, the adjustable lifting head **918** may be raised or lowered so as to be positioned substantially over central reference point **934**. FIG. 15 shows a front end view of trailer **912** with lifting head **918** positioned generally on central reference point **934** such that a coil of pipe (or reel) may rest against set of rollers **902** so as to benefit from the rotational movement imparted on the coil of pipe by the set of rollers **902** during deployment. Accordingly, lifting head **918** may be raised or lowered along track **932** in accordance with the embodiments discussed above with respect to track **132**.

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Rollers 902 may be useful for providing bearing support that facilitates the overall rotational movement of a coil of pipe, for example, as the coil of pipe is being deployed. As shown in FIG. 9, according to one or more embodiments, rollers 902 are generally circumferentially arranged around trailer bed 920. Such a circumferential arrangement may ensure that a rotational support member (roller) is disposed at each area of trailer bed 920 that a coil of pipe may make contact with. For example, one of ordinary skill will understand that to uncoil a coil of pipe, an unsecured end of pipe is pulled in a direction away from a trailer 912 on which the coil of pipe is mounted. As the coil of pipe is unwound, the layers of coil of pipe may contact each roller of rollers 902, which enables the coil of pipe to make complete 360 degree rotational turns as an unsecured end of pipe is pulled away from trailer 912. When the coil of pipe has completed all of the turns required to fully unwind the coil of pipe, then the coil of pipe has been fully deployed (i.e. unwound).

In accordance with embodiments described above, as pipe is pulled, the coil of pipe may rotate around lifting head 918, which may also cause rollers 902 to begin rotating in place. Bed of rollers 902 may thus provide rotational movement that translates to a loaded coil of pipe and assists in deploying, i.e., unspooling, the coil of pipe. As discussed above with respect to FIGS. 1-6, lifting head 918 may adjust to support a coil of pipe 102 from its inner diameter. Lifting head 918 may be configured to adjust to suitably fit the inner diameter of a variety of coils of pipe. Further, lifting head 918 may be adapted to engage with track 934 to be positioned anywhere along track 934. As shown in FIG. 13, trailer bed 920 may be disposed in a horizontal orientation and may be pivotally coupled to trailer base 916. FIG. 14 shows that, in accordance with one or more embodiments, one or more actuators (e.g. 922) may be actuated to extend trailer bed 920 to a vertical orientation. Actuator 922 may be an exemplary actuator in accordance with the embodiments discussed above with respect to FIGS. 1-6. In other words, actuator 922 may be hydraulically powered to raise and lower (or tilt at any angle) trailer bed 920. In other embodiments, lifting head 918 may be configured as a shaft, such as shaft 802, which may be used to load, unload, and deploy coiled pipe disposed on a reel. Thus, trailer 912 is configured to have a trailer bed 920 that may be raised and lowered to alter the orientation of a coil of pipe or reel when loaded.

FIGS. 9-15 further illustrate containment arms 930 in accordance with one or more embodiments of the present disclosure. Containment arms 930 may be extended (as shown in FIGS. 9, 10, and 12-14) or compressed (as shown in FIGS. 11 and 15). Containment arms 930 may include individual arms (e.g. two individual arms as shown in FIGS. 9-15) which may be adjusted to move towards or away from central reference point 934. In one or more embodiments, containment arms 930 may be affixed to upright support members 940 that are affixed to a surface of trailer bed 920. Containment arms 930 may be adapted to pivot outwardly from support members 940 when extended and may also be adapted to pivot inwardly towards support members 940 when retracted (i.e. compressed). Containment arms 930 may further include stabilizers 942 disposed on a top edge of containment arms 930.

Containment arms 930 may function as structural supports that further contain a coil of pipe or reel disposed on trailer bed 920. Containment arms 930 may provide greater control of one or more layers of a coil of pipe, particularly during deployment of a coil of pipe or reel. Further, in one or more embodiments, stabilizers 942 may provide tension against an outer surface of a coil of pipe or reel that is being

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deployed. Further, containment arms 930 may assist during re-packaging/respooling of pipe into shipment quality coils. It is noted that containment arms such as containment arms 930 may be included in any of the embodiments described in the present disclosure for trailer bed 120 or any other trailer bed, e.g., 1620 in FIGS. 16-19 and 2020 in FIG. 20.

In one or more embodiments, a slide table, e.g. slide table 944 may be included with trailer bed 920 (as shown in FIGS. 9-15). In one or more embodiments, slide table 944 may include two sections disposed on either side of track 934. Each section of slide table 944 may include a number of rollers 902. In one or more embodiments, the number of rollers 902 may be affixed to an upper surface of each section of slide table 944. In one or more embodiments, slide table 944 may be configured to slidably engage with one or more support members 946 (as shown in FIG. 11) in order to slide away from the longitudinal axis that track 934 is disposed on. Slide table 944 may be manually pulled (or pushed when retracted) into position by an operator of trailer bed 920. In other embodiments, slide table 944 may be hydraulically controlled. In other embodiments, slide table 944 may be automatically positioned using mechanical/electrical systems known to those in the art.

FIGS. 11, 12, and 15 illustrate slide table 944 in an extended position. Further, FIGS. 11, 12, and 15 show that containment arms 930 may also be engaged in either a compressed or extended position when slide table 944 is in its extended position. Slide table 944 may provide a support for a coil of pipe (e.g. 102) or reel (e.g. 702) to bear against. The set of rollers 902 included on the upper surface of each section of slide table 944 may allow for the coiled pipe to rotate during deployment. Extending slide table 944 may allow for trailer bed 920 to accommodate coils of pipes or reels of larger sizes as well as provide a wider surface area against which the coil of pipe may rest against during deployment. In accordance with one or more embodiments, rollers 902 may be arranged both above and below the location of slide table 944. In other embodiments, rollers 902 may only be included on each section of slide table 944.

Turning to FIGS. 16-19, turntable 1602 may be disposed on a trailer bed 1620 in accordance with embodiments of the present disclosure. In one or more embodiments, turntable 1602 may include a rotatable platform on which a coil of pipe (e.g., coil of pipe 102 or reel 702 of pipe) may be positioned using any one of the positioning methods as described in the present disclosure. A lifting head 1618 is mounted to turntable 1602. As shown in FIGS. 16-19, lifting head 1618 includes an arm assembly (e.g. arms 1606, 1608, 1628, and 1630) that protrudes outwardly from the turntable 1602. Turntable 1602 may advantageously provide additional support for a coil of pipe after being loaded onto lifting head 1618. Additionally, turntable 1602 may provide rotational movement that assists when deploying, i.e. unspooling, a mounted coil of pipe.

FIGS. 16 and 17 illustrate trailer bed 1620 deployed in a horizontal orientation. FIGS. 18 and 19 illustrated trailer bed 1620 deployed in a vertical orientation and generally perpendicularly oriented to trailer base 1616. Similar to the discussion presented above regarding actuator 122, actuator 1622 may be configured to extend when trailer bed 1620 is in a vertical orientation and may be configured to retract so as to orient trailer bed 1620 in a horizontal orientation. Loading and unloading a coil of pipe or reel onto lifting head 1618 may be accomplished in accordance with any one of the embodiments discussed above with respect to lifting head 1618.

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In one or more embodiments, turntable **1602** may include one or more sections. As shown in FIGS. **16** and **18**, each section of turntable **1602** may include a track **1626** disposed along a longitudinal axis of turntable **1602** along which one or more arms of lifting head **1618** may move to increase or decrease a distance between arms **1606** and **1608**. Accordingly, arms **1606** and **1608** are disposed on opposite sides of central shaft **1610**, and arms **1606** and **1608** may be configured to be moved along track **1626** on each section of turntable **1002**. Thus, lifting head **1618** may be adjusted to fit an inner diameter of various sized coils of pipe **102** (or reels). In addition, in one or more embodiments, arms **1628** and **1630** disposed on a transverse axis of turntable **1602** (located opposite sides of central shaft **1610**) may also be configured to expand or retract as needed to adjust to the inner diameter of a coil of pipe **102**.

Further, trailer bed **1620** may include a rotatable platform **1624** upon which each section of turntable **1602** may be disposed (as shown in FIGS. **17** and **19**). Rotatable platform **1624** may enable turntable **1602** to rotate during deployment of a coil of pipe disposed upon turntable **1602**. Thus, as shown in FIG. **19**, when trailer bed **1620** is disposed in a vertical orientation, an unsecured end of a pipe on a coil of pipe (e.g. **102**) may be pulled away from trailer **1612** so that the pipe disposed in a coil may be unwound and laid out for further use. In one or more embodiments, coil of pipe **102** may be deployed while trailer bed **1612** is in a horizontal orientation (as shown in FIG. **16**).

Trailer **1612** may be operated as trailer **112** according to one or more embodiments discussed above. It is also understood by those of ordinary skill in the art that trailer **1612** may have different configurations than those shown in FIGS. **16-19**. For example, the size of trailer **1612** and size of turntable **1604** may be configured as needed. Further, containment arms similar to containment arms **930** may be disposed on a surface of trailer bed **1620** in accordance with one or more embodiments.

Turning to FIG. **20**, FIG. **20** shows an embodiment that includes a retention component that provides tension to assist in keeping a coil of pipe in place and remain in the respective layers of coil of pipe (e.g., similar to stabilizers **942**). As shown, trailer **2012** includes a trailer bed **2020** mounted to a trailer base **2016**, a lifting head movably mounted to and protruding outwardly from the trailer bed **2020** (such that the lifting head **2018** may move along a track with respect to the trailer bed while also being retained to the trailer bed), and a retention component **2002** mounted to the trailer bed **2020**. In other embodiments, a retention component may be mounted to a trailer base **2016**. Retention component **2002** may act as an arm or support that may be positioned to one side of coil of pipe **102** as coil of pipe **102** is being deployed from the trailer **2012**. Oftentimes, as pipe is unwound from a coil, being deployed, the layers of pipe may begin to unravel and the pipe does not unspool in a uniform or steady manner. Having a retention component, such as **2002**, may allow for a force to be imparted to one side (along an outer diameter) of the coil of pipe **102** and prevent the coil of pipe **102** from unraveling too quickly, so that the overall structure of the coil of pipe **102** remains intact until each layer of pipe that make up the coil of pipe **102** has been pulled during deployment. It is noted that pipe may be deployed at many different sites which may not have on hand the necessary devices and additional equipment to easily spool or rewind pipe into a coil (e.g. at various oil and gas drilling sites). As such, retention member **2002** may be useful in holding coil of pipe **102** secure against trailer bed **2020**.

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An energizing mechanism **2004** is configured to apply a force to the retention member **2002**, which in turn, may provide a force pushing against an outer diameter of a loaded coil of pipe **102**. The energizing mechanism **2004** may be a hydraulic arm energized by pressurized hydraulic fluid, which may be contained within tank **2006**. According to embodiments of the present disclosure, other energizing mechanisms may be used to energize energizing mechanism **2004** to apply a force to an outer diameter of a loaded coil of pipe, including without limitation, one or more springs, pneumatic energizing sources, or other mechanical or electrically energizing sources.

In one or more embodiments, the retention component **2002**, energizing mechanism **2004** and/or tank **2006** may be detachably or permanently mounted on trailer bed **2020**. For example, in one or more embodiments, retention component **2002**, energizing mechanism **2004** and/or tank **2006** may be detachable from trailer bed **2020** and may be used only during deployment. In other embodiments, a retention component assembly (e.g., retention component **2002**, energizing mechanism **2004** and/or tank **2006**) may be permanently mounted to trailer bed **2020**. Further, retention component **2002** and energizing mechanism **2004** may be configured to be stored in a retracted position (when not in use) on trailer **2012**.

Pipe may be deployed from a coil of pipe or reel of pipe loaded onto a trailer according to embodiments of the present disclosure. A coil of pipe (or reel of pipe) loaded onto a lifting head of a trailer may be deployed while the lifting head is in a raised orientation (e.g., when one or more actuators is in an actuated state to raise the lifting head alone or to raise a trailer bed having a lifting head attached in a vertical orientation) or may be deployed while the lifting head is in a lowered orientation (e.g., when a lifting head is disposed along a trailer bed in a horizontal orientation). Pipe may be deployed from a coil of pipe (or reel of pipe) by unwinding the pipe from the coil of pipe (or reel of pipe) while the coil of pipe (or reel of pipe) is loaded on the lifting head.

According to some embodiments, deploying pipe from a coil of pipe (or reel of pipe) may include pulling an end of the pipe from the coil of pipe to unwind the coil of pipe. The trailer on which the coil of pipe is loaded may remain stationary while the end of the pipe is pulled. The coil of pipe may rotate about the lifting head on which it is loaded as the pipe is pulled from the coil. In some embodiments, a lifting head on which a coil of pipe is loaded may rotate the coil during unwinding the pipe from the coil. In some embodiments, deploying pipe from a coil of pipe (or reel of pipe) may include moving the trailer on which the coil of pipe is loaded away from an end of the pipe, whereby the coil of pipe may rotate during deploying to unwind the coil of pipe as the trailer moves away from the end of the pipe. The coil may rotate about the lifting head as the trailer moves away, or the lifting head may rotate the coil as the trailer moves away.

According to some embodiments, pipe may be deployed from a coil of pipe loaded onto a lifting head of a trailer by unwinding the pipe from the coil of pipe. A retention component may be engaged with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying. When the retention component is engaged with and applying a force to the outer diameter of the coil of pipe, the retention component may support the

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outer diameter of the remaining coil (pipe that has not yet been unwound), thereby retaining or supporting the shape of the coil during deployment.

Further, in some embodiments, tension may be provided to a coil of pipe during deployment of pipe from the coil to control a speed of the unwinding. Tension mechanisms may include, for example, friction pads that may contact and create friction against the coil of pipe. Friction pads may be provided on, for example, containment arms, retention mechanisms, and/or the trailer bed (e.g., on a bed having a set of rollers disposed thereon). Friction pads may be selectively maneuvered or adjusted to provide a desired amount of friction to the coil as it rotates to unwind the pipe. Tension may be provided to a coil of pipe during deployment of the pipe, for example, to reduce the speed of the pipe being deployed and/or to stop deployment.

Those of ordinary skill in the art will appreciate that one or more pulling devices may be attached to one end of pipe to provide additional support to pull pipe any distance away from a trailer according to embodiments of the present disclosure in order to unwind the layers of pipe provided on coil of pipe. Further, in one or more embodiments, pipe from a coil of pipe may be attached to one or more tools known in the art to position the pipe downhole in a well. In addition, pipe from a coil of pipe may be pulled and laid in a horizontal manner on the ground for further use.

According to embodiments of the present disclosure, pipe may be spooled either into a coil of pipe or into a reel of pipe using trailers according to embodiments of the present disclosure. For example, in some embodiments, a trailer may be provided having a trailer base, a trailer bed mounted to the trailer base, a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and at least one actuator coupled to the trailer base for moving the lifting head to a second orientation. An end of pipe may be secured directly or indirectly to the lifting head of the trailer. The lifting head may then be rotated with the end of the pipe secured thereto to wind the pipe around the lifting head, thereby spooling the pipe into a coil (or around a reel in embodiments where a reel is disposed around the lifting head and the pipe is wound around the reel as the lifting head is rotated).

A motor may be disposed on the trailer in a position to rotate the lifting head, for example, at a base of the lifting head or on the trailer bed proximate to the lifting head. In some embodiments, a chain driven mechanism may be used to spool (or respool) pipe. For example, a hydraulic gear box with chain between the gears may be used to chain drive rotation of a lifting head, where the gears may rotate in a first direction to move the lifting head in a first rotational direction (e.g., to unwind pipe from a coil) and the gears may back rotate in a second opposite direction to move the lifting head in an opposite rotational direction (e.g., to wind pipe into a coil). In some embodiments, a motor may be used to rotate a platform on which a lifting head is disposed in a first rotational direction to deploy pipe from a coil of pipe and/or to rotate the platform on which the lifting head is disposed in an opposite rotational direction to spool or respool pipe into a coil.

FIG. 21 shows an example of a trailer **2112** according to embodiments of the present disclosure having a motor **2150** disposed thereon, which may be used for spooling or respooling a pipe around the trailer lifting head. In the embodiment shown, the motor **2150** may be disposed between the trailer bed **2120** and a turntable **2130** supporting

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the trailer lifting head. The motor **2150** may rotate the turntable **2130** in either a clockwise or counterclockwise direction to spool or deploy pipe from around the lifting head protruding from the turntable **2130**.

FIGS. 22 and 23 show examples of motors that may be used with trailers according to embodiments of the present disclosure. As shown in FIG. 22, a motor **2200** may be mounted to a platform or support structure **2210** that may be attached to and movable with respect to a trailer bed. For example, the support structure **2210** may be mounted to a track on a trailer bed, where the support structure may move along the track. A lifting head, such as described herein, may protrude from the support structure **2210** and be rotated by the motor **2200**. As shown, the motor **2200** may drive a gear box **2220** using a chain **2230**, where the gear box **2220** may rotate an attached lifting head. In some embodiments, motor **2200** may be a hydraulic motor to chain drive the rotation of a lifting head via the gear box **2220**.

As shown in FIG. 23, a motor **2300** may be mounted to a platform or support structure **2310** that may be attached to and movable with respect to a trailer bed. A lifting head, such as described herein, may protrude from the support structure **2310** and be rotated by the motor **2300**. As shown, the motor **2300** may drive a gear box **2320** directly, where the gear box **2320** may rotate an attached lifting head. In some embodiments, motor **2300** may be a hydraulic motor directly driving the rotation of a lifting head via the gear box **2320**.

Respooling of the deployed pipe may be achieved using any of the embodiments discussed in the present disclosure. In other words, the deployed pipe may be rewound into a coil of pipe **102** around either lifting head **118** or shaft **802**. Respooling, i.e. rewinding, deployed pipe into a coil may provide a more manageable way to maneuver and manipulate the coiled pipe for various uses and purposes. In one or more embodiments, the pipe that is to be respooled may be rewound into a coil **102** having one or more layers. Further, the pipe that is to be respooled may be rewound into a coil as disposed upon reel **702**.

Numerous benefits and advantages may be provided as a result of the one or more embodiments described in the present disclosure. A trailer in accordance with one or more embodiments of the present disclosure may be self-loading, which means that the coil of pipe or reel of pipe (depending on what is provided) may be loaded to and positioned along the trailer with minimal additional support equipment and/or human labor. As described herein, a coil of pipe or reel of pipe may be positioned onto a protruding portion of a lifting head (e.g. arm assembly or shaft), which may be coupled to a trailer bed that is configured to be automatically raised and lowered from a fully vertical to a horizontal orientation and vice versa. As such, a trailer according to embodiments described herein may be described as self-loading.

In addition, the trailer bed, as described in one or more embodiments herein, may be capable of automatically being raised or lowered to change the orientation of a coil of pipe. Such a trailer may eliminate the need to engage support equipment and supplies, such as without limitation, additional pallets, skids, baskets, and other external support features needed to load the coiled pipe in the horizontal, i.e., eye to the sky, orientation.

In addition, a trailer, as described herein, may be able to handle a larger weight capacity compared to existing trailers used to transport coiled pipe due to the additional support provided by an adjustable lifting head mounted to a trailer bed, and also because the trailer bed may be lowered back to a horizontal orientation during transportation of such a

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trailer, which allows for transportation of coils or reels of pipe having heavier weights and larger dimensions.

Further, a trailer as described in the present disclosure may be able to unload full or partial coil directly to the ground using a repositionable lifting head along a track as described above. Alternatively, a coil of pipe may be lowered onto any other type of trailer or other vehicle. Numerous other benefits and advantages are provided by a trailer in accordance with one or more embodiments of the present disclosure as will be understood by those of ordinary skill in the art.

While the present disclosure has been described with respect to a limited number of embodiments, those skilled in the art, having benefit of this disclosure, will appreciate that other embodiments may be devised which do not depart from the scope of the disclosure as described herein. Accordingly, the scope of the disclosure should be limited only by the attached claims.

What is claimed is:

1. A trailer, comprising:
 - a trailer base;
 - a trailer bed mounted to the trailer base;
 - a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and
 - at least one actuator coupled to the trailer base, wherein, when the at least one actuator is in an actuated state, the lifting head is raised to a second orientation by the at least one actuator, and when the at least one actuator is in a non-actuated state, the lifting head is in the first orientation.
2. The trailer of claim 1, wherein the at least one actuator is coupled to the lifting head, and when the at least one actuator is in the actuated state, the lifting head is raised to the second orientation apart from the trailer base and the trailer bed.
3. The trailer of claim 1, wherein the at least one actuator is coupled to the trailer bed, and when the at least one actuator is in the actuated state, the trailer bed is raised together with the lifting head to the second orientation.
4. The trailer of claim 1, wherein the lifting head comprises one or more arm members that protrude from the trailer bed.
5. The trailer of claim 4, wherein the lifting head comprises more than one arm member, and wherein the arm members adjustable about a central axis extending outwardly from the trailer bed and through the lifting head.
6. The trailer of claim 1, further comprising a slide table with a set of rollers affixed to the slide table, wherein the slide table is connected to the trailer bed.
7. The trailer of claim 1, further comprising a set of rollers disposed along the trailer bed, wherein the set of rollers extend along the trailer bed in a radial direction from a central reference point located a distance along a length of the trailer bed, the length of the trailer bed extending along the longitudinal axis of the trailer bed from a base edge at an end of the trailer bed to an upper edge at an opposite end of the trailer bed, wherein the distance is greater than a radius of a coil of pipe.

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8. The trailer of claim 1, further comprising a turntable, wherein the lifting head comprises one or more arms protruding outwardly from the turntable.

9. The trailer of claim 1, further comprising a retention component coupled to the trailer and an energizing mechanism configured to apply a force to the retention component.

10. The trailer of claim 9, wherein the energizing mechanism is a hydraulic arm, energized by pressurized hydraulic fluid.

11. A method for manipulating a coil of pipe, comprising: providing a trailer, comprising:

- a trailer bed mounted to a trailer base; and
- a lifting head disposed on the trailer bed, the lifting head comprising one or more arms protruding in an outwardly direction from the trailer bed, wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; positioning the coil of pipe on the lifting head, wherein the coil of pipe and the trailer bed are in a vertical orientation, positioning comprising: adjusting a position of the lifting head along the trailer bed to align the one or more arms of the lifting head with an interior channel extending through the coil of pipe; and inserting the one or more arms of the lifting head through the interior channel of the coil of pipe; lowering the trailer bed to a horizontal orientation while the coil of pipe is positioned on the lifting head, wherein the coil of pipe is wound on a reel such that the interior channel of the coil of pipe is concentric with a central bore of the reel, and wherein during the positioning of the coil of pipe on the lifting head, the vertical position of the lifting head is adjusted to align the one or more arms of the lifting head with the central bore of the reel, and the one or more arms of the lifting head is inserted through the central bore of the reel.

12. The method of claim 11, further comprising:

deploying pipe from the coil of pipe, the deploying comprising pulling an end of the pipe from the coil of pipe to unwind the coil of pipe.

13. The method of claim 11, further comprising:

deploying pipe from the coil of pipe, the deploying comprising moving the trailer away from an end of the pipe, wherein the coil of pipe rotates about the lifting head during deploying to unwind the coil of pipe as the trailer moves away from the end of the pipe.

14. The method of claim 11, further comprising:

deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and engaging a retention component with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying.

15. The method of claim 11, further comprising:

deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and providing tension to the coil of pipe to control a speed of the unwinding mechanism to provide tension and control the speed of pipe deployed and/or to stop deployment.

16. A method for spooling pipe, comprising: providing a trailer, comprising:

- a trailer base;
- a trailer bed mounted to the trailer base;

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a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track 5 extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and 10

at least one actuator coupled to the trailer base for moving the lifting head to a second orientation;

securing an end of the pipe to the lifting head; and

rotating the lifting head to wind the pipe around the lifting head. 15

17. The method of claim **16**, wherein a motor is disposed at a base of the lifting head, wherein the motor rotates the lifting head.

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CLAIMS ALLOWED FOR US APPLICATION No. 15/337110
(PATENT No. US 10266093 B2)

1. A trailer, comprising:
 - a trailer base;
 - a trailer bed mounted to the trailer base;
 - a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and
 - at least one actuator coupled to the trailer base,wherein, when the at least one actuator is in an actuated state, the lifting head is raised to a second orientation by the at least one actuator, and when the at least one actuator is in a non-actuated state, the lifting head is in the first orientation.
2. The trailer of claim 1, wherein the at least one actuator is coupled to the lifting head, and when the at least one actuator is in the actuated state, the lifting head is raised to the second orientation apart from the trailer base and the trailer bed.
3. The trailer of claim 1, wherein the at least one actuator is coupled to the trailer bed, and when the at least one actuator is in the actuated state, the trailer bed is raised together with the lifting head to the second orientation.
4. The trailer of claim 1, wherein the lifting head comprises one or more arm members that protrude from the trailer bed.
5. The trailer of claim 4, wherein the lifting head comprises more than one arm member, and wherein the arm members adjustable about a central axis extending outwardly from the trailer bed and through the lifting head.
6. The trailer of claim 1, further comprising a slide table with a set of rollers affixed to the slide table, wherein the slide table is connected to the trailer bed.

7. The trailer of claim 1, further comprising a set of rollers disposed along the trailer bed, wherein the set of rollers extend along the trailer bed in a radial direction from a central reference point located a distance along a length of the trailer bed, the length of the trailer bed extending along the longitudinal axis of the trailer bed from a base edge at an end of the trailer bed to an upper edge at an opposite end of the trailer bed, wherein the distance is greater than a radius of a coil of pipe.
8. The trailer of claim 1, further comprising a turntable, wherein the lifting head comprises one or more arms protruding outwardly from the turntable.
9. The trailer of claim 1, further comprising a retention component coupled to the trailer and an energizing mechanism configured to apply a force to the retention component.
10. The trailer of claim 9, wherein the energizing mechanism is a hydraulic arm, energized by pressurized hydraulic fluid.
11. A method for manipulating a coil of pipe, comprising:
 - providing a trailer, comprising:
 - o a trailer bed mounted to a trailer base; and
 - o a lifting head disposed on the trailer bed, the lifting head comprising one or more arms protruding in an outwardly direction from the trailer bed, wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed;
 - positioning the coil of pipe on the lifting head, wherein the coil of pipe and the trailer bed are in a vertical orientation, positioning comprising:
 - o adjusting a position of the lifting head along the trailer bed to align the one or more arms of the lifting head with an interior channel extending through the coil of pipe; and
 - o inserting the one or more arms of the lifting head through the interior channel of the coil of pipe;
 - lowering the trailer bed to a horizontal orientation while the coil of pipe is positioned on the lifting head, wherein the coil of pipe is wound on a reel such that the interior channel of the coil of pipe is concentric with a central bore of the reel, and wherein during the positioning of the coil of pipe on

the lifting head, the vertical position of the lifting head is adjusted to align the one or more arms of the lifting head with the central bore of the reel, and the one or more arms of the lifting head is inserted through the central bore of the reel.

12. The method of claim 11, further comprising: deploying pipe from the coil of pipe, the deploying comprising pulling an end of the pipe from the coil of pipe to unwind the coil of pipe.

13. The method of claim 11, further comprising: deploying pipe from the coil of pipe, the deploying comprising moving the trailer away from an end of the pipe, wherein the coil of pipe rotates about the lifting head during deploying to unwind the coil of pipe as the trailer moves away from the end of the pipe.

14. The method of claim 11, further comprising: deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and engaging a retention component with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying.

15. The method of claim 11, further comprising: deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and providing tension to the coil of pipe to control a speed of the unwinding mechanism to provide tension and control the speed of pipe deployed and/or to stop deployment.

16. A method for spooling pipe, comprising:

- providing a trailer, comprising:
 - a trailer base;
 - a trailer bed mounted to the trailer base;
 - a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the

lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and

- at least one actuator coupled to the trailer base for moving the lifting head to a second orientation;
- securing an end of the pipe to the lifting head; and
- rotating the lifting head to wind the pipe around the lifting head.

17. The method of claim 16, wherein a motor is disposed at a base of the lifting head, wherein the motor rotates the lifting head.

TRADUCCIÓN DE LAS REIVINDICACIONES OTORGADAS EN ESTADOS
UNIDOS SOLICITUD No. 15/337110 (PATENTE US No. 10266093 B2)

1. Un remolque, caracterizado porque comprende:
 - una base de remolque;
 - una plataforma de remolque montada a la base de remolque;
 - un cabezal alzador que sobresale en una dirección hacia fuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque, y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y
 - al menos un actuador acoplado a la base de remolque,en donde, cuando el al menos un actuador está en un estado accionado, el cabezal alzador es elevado a una segunda orientación por al menos un actuador, y cuando al menos un actuador está en un estado no accionado, el cabezal alzador está en la primera orientación.
2. El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador está acoplado al cabezal alzador, y cuando el al menos un actuador está en el estado accionado, el cabezal alzador es subido a la segunda orientación separado de la base de remolque y la plataforma de remolque.
3. El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador es acoplado a la plataforma de remolque, y cuando el

al menos un actuador está en el estado accionado, la plataforma de remolque es subida junto con el cabezal alzador a la segunda orientación.

4. El remolque de conformidad con la reivindicación 1, caracterizado porque el cabezal alzador comprende uno o más elementos de brazo que sobresalen desde la plataforma de remolque.
5. El remolque de conformidad con la reivindicación 4, caracterizado porque el cabezal alzador comprende más de un elemento de brazo, y en donde los elementos de brazo son ajustables alrededor de un eje central que se extiende hacia afuera desde la plataforma de remolque y a través del cabezal alzador.
6. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una tabla deslizante con un conjunto de rodillos fijos a la tabla deslizante, en donde la tabla deslizante está conectada a la plataforma de remolque.
7. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un conjunto de rodillos colocados a lo largo de la plataforma de remolque, en donde el conjunto de rodillos se extiende a lo largo de la plataforma de remolque en una dirección radial desde un punto de referencia central ubicado a una distancia a lo largo de una longitud de la plataforma de remolque, la longitud de la plataforma de remolque extendiéndose a lo largo del eje longitudinal de la plataforma de remolque desde un borde base en un extremo de la plataforma de remolque a un borde superior en un extremo opuesto de la plataforma de remolque, en donde la distancia es mayor que un radio de un serpentín de tubería.
8. El remolque de conformidad con la reivindicación 1, caracterizado porque

además comprende una mesa giratoria, en donde el cabezal alzador comprende uno o más brazos que sobresalen hacia afuera desde la mesa giratoria.

9. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un componente de retención acoplado al remolque y un mecanismo energizante configurado para aplicar una fuerza al componente de retención.

10. El remolque de conformidad con la reivindicación 9, caracterizado porque el mecanismo energizante es un brazo hidráulico, energizado por fluido hidráulico presurizado.

11. Un método para manipular un serpentín de tubería, caracterizado porque comprende:

- proporcionar un remolque, que comprende:
 - o una plataforma de remolque montada a una base de remolque; y
 - o un cabezal alzador colocado sobre la plataforma de remolque, el cabezal alzador comprendiendo uno o más brazos que sobresalen en una dirección hacia afuera desde la plataforma de remolque; en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque;
- colocar el serpentín de tubería sobre el cabezal alzador, en donde el serpentín de tubería y la plataforma de remolque están en una orientación

vertical, la colocación comprende:

- ajustar una posición del cabezal alzador a lo largo de la plataforma de remolque para alinear uno o más brazos del cabezal alzador con un canal interior que se extiende a través del serpentín de tubería; e
 - insertar uno o más brazos del cabezal alzador a través del canal interior del serpentín de tubería;
- bajar la plataforma de remolque a una orientación horizontal mientras que el serpentín de tubería está colocado sobre el cabezal alzador; en donde el serpentín de tubería es devanado en un carrete de modo que el canal interior del serpentín de tubería queda concéntrico con un agujero central del carrete, y en donde durante la colocación del serpentín de tubería sobre el cabezal alzador, la posición vertical del cabezal alzador es ajustada para alinear el uno o más brazos del cabezal alzador con el agujero central del carrete, y el uno o más brazos del cabezal alzador es insertado a través del agujero central del carrete.

12.El método de conformidad con la reivindicación 11, caracterizado porque además comprende:

desplegar tubería desde el serpentín de tubería, el despliegue comprende jalar un extremo de la tubería desde el serpentín de tubería para desenrollar el serpentín de tubería.

13.El método de conformidad con la reivindicación 11, caracterizado porque además comprende:

desplegar la tubería desde el serpentín de tubería, el despliegue comprende mover el remolque lejos de un extremo de la tubería, en donde el serpentín de tubería rota alrededor del cabezal alzador durante el despliegue para

desenrollar el serpentín de tubería a medida que el remolque se aleja del extremo de la tubería.

14.El método de conformidad con la reivindicación 11, caracterizado porque además comprende:

- desplegar la tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y
- acoplar un componente de retención con un diámetro exterior del serpentín de tubería durante el despliegue, en donde un mecanismo energizante aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro exterior del serpentín de tubería durante el despliegue.

15.El método de conformidad con la reivindicación 11, caracterizado porque además comprende:

- desplegar tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y
- proporcionar tensión al serpentín de tubería para controlar la velocidad del desenrollado mecanismo para proporcionar tensión y controlar la velocidad de la tubería desplegada y/o detener el despliegue.

16.Un método para enrollar tubería, caracterizado porque comprende:

- proporcionar un remolque, que comprende:
 - o una base de remolque;
 - o una plataforma de remolque montada a la base de remolque;
 - o un cabezal alzador que sobresale en una dirección hacia afuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una

posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque; y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y

- al menos un actuador acoplado a la base de remolque para mover el cabezal alzador a una segunda orientación;
- asegurar un extremo de la tubería al cabezal alzador; y
- rotar el cabezal alzador para enrollar la tubería alrededor del cabezal alzador.

17. El método de conformidad con la reivindicación 16, caracterizado porque un motor está colocado en una base del cabezal alzador, en donde el motor rota el cabezal alzador.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/337,110	10/28/2016	Christopher WHITE	(027US) 166301-014002/US	3872
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor

to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-25 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-9 of copending Application No. 15/799,615. Although the claims at issue are not identical, they are not patentably distinct from each other because it would have been obvious to one of ordinary skill in the art that Claims 1-25 are included in and/or can be gleaned from claims 1-9 of copending Application No. 15/799,615.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 112

Claim 23 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 23 is vague and indefinite. On lines 4-5, the phrase “*(friction pads on containment arms/retention mechanism/roller bed, etc)*” is unclear. First, it should be noted that

characters/phrases within a parenthesis are ignored. Second, is applicant attempting to claim the pads? The phrase within the parenthesis should be deleted as it does not set forth further limitations of the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 1-6, 9, and 24-25 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Bebinger (U.S. Patent No. 2,667,476).

With respect to Claim 1, Bebinger, Figures 1-12, teaches a trailer, comprising:

a trailer base 2;

a trailer bed 6 mounted to the trailer base 2;

a lifting head 120 protruding in an outwardly direction from the trailer bed 6 and the trailer base 2 when the lifting head 120 is in a first orientation (*See Figure 2; and Figure 4 where 120 and roll B are in a horizontal position*), wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed 6; and

at least one actuator coupled 70 to the trailer base 2,

wherein, when the at least one actuator 70 is in an actuated state, the lifting head 120 is raised to a second orientation (*see Figure 3 where axis of roll B is in a vertical position*) by the at least one actuator 70, and when the at least one actuator 70 is in a non-actuated state, the lifting head 120 is in the first orientation.

With respect to Claim 2, Bebinger further teaches wherein the at least one actuator 70 is coupled to the lifting head 120, and when the at least one actuator 170 is in the actuated state, the lifting head 120 is raised to the second orientation apart from the trailer base 2 and the trailer bed 6.

With respect to Claim 3, Bebinger further teaches wherein the at least one actuator 170 is coupled to the trailer bed 6, and when the at least one actuator 170 is in the actuated state, the trailer bed 6 is raised together with the lifting head 120 to the second orientation.

With respect to Claim 4, Bebinger further teaches wherein the lifting head 120 is coupled to a track 110 extending along the longitudinal axis of the trailer bed 6, wherein the lifting head 120 engages with and is movable along the track 110 to adjust the position of the lifting head 120 on the trailer bed 6.

With respect to Claim 5, Bebinger further teaches wherein the lifting head 120 comprises one or more arm members (*See Figure 6*) that protrude from the trailer bed.

With respect to Claim 6, Bebinger further teaches wherein the lifting head 120 comprises more than one arm member (*See Figure 6*), and wherein the arm members adjustable about a central axis extending outwardly from the trailer bed 6 and through the lifting head 120.

With respect to Claim 9, Bebinger further teaches a turntable 86, wherein the lifting head 120 comprises one or more arms (*See Figure 6*) protruding outwardly from the turntable 86.

With respect to Claims 24-25, the method described in these claims would inherently result from the use of the trailer of Bebinger as advanced above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Bebinger (U.S. Patent No. 2,667,476) in view of Lyon (U.S. Patent No. 438,015).

With respect to Claim 7, Bebinger is advance above.

Bebinger teaches all the elements of the trailer except for a slide table with a set of rollers affixed to the slide table, wherein the slide table is connected to the trailer bed.

However, Lyon, Figure 1-3, teaches a slide table C with a set of rollers G affixed to the slide table D, wherein the slide table is connected to a trailer bed A'.

It would have been obvious to one of ordinary skill in the art to provide Bebinger with a slide table on rollers, as taught by Lyon, for the purpose of adjusting the position of the holder depending on the size of the roll.

Claims 10-11 is/are rejected under 35 U.S.C. 103 as being unpatentable over Bebinger (U.S. Patent No. 2,667,476) in view of Crum (U.S. Patent No. 5,806,779).

With respect to Claim 10, Bebinger is advanced above.

Bebinger teaches all the elements of the trailer except for a retention component coupled to the trailer and an energizing mechanism configured to apply a force to the retention component.

However, Crum, Figures 1 and 2, teaches a retention component 32,35 coupled to the trailer 11 and an energizing mechanism 40,42 configured to apply a force to the retention component, 32,35.

It would have been obvious to one of ordinary skill in the art to provide Bebinger with a retention component, as taught by Crum, for the purpose of supporting the roll in an axial direction.

With respect to Claim 11, Crum further teaches wherein the energizing mechanism 40,42 is a hydraulic arm, energized by pressurized hydraulic fluid.

Claims 19-21 and 23 is/are rejected under 35 U.S.C. 103 as being unpatentable over Beem et al (U.S. Patent No. 7,614,581), hereinafter “*Beem*”, in view of Krise et al (U.S. Patent Application Publication No. 2005/0109870), hereinafter “*Krise*”.

With respect to Claim 19-21 and 23, Beem, Figures 1-32, teaches a method for manipulating a coil of pipe, comprising:

providing a trailer 100, comprising:

a trailer bed 200 mounted to a trailer base 202; and

a lifting head 300 disposed on the trailer bed 202, the lifting head 300 comprising one or more arms 308 protruding in an outwardly direction from the trailer bed 200;

positioning the coil of pipe 60 on the lifting head 300, wherein the coil of pipe and the trailer bed 200 are in a vertical orientation (*see Figure 5*), positioning comprising: adjusting a position of the lifting head along the trailer bed (*see Figure 4*) to align the

one or more arms 308 of the lifting head 300 with an interior channel extending through the coil of pipe; and

inserting (*see Figure 4*) the one or more arms 308 of the lifting head through the interior channel of the coil of pipe;

lowering the trailer bed (*see Figures 3-5*) to a horizontal orientation while the coil of pipe is positioned on the lifting head,

wherein the coil of pipe is wound on a reel such that the interior channel of the coil of pipe is concentric with a central bore of the reel, and wherein during the positioning of the coil of pipe on the lifting head, the vertical position of the lifting head is adjusted to align the one or more arms of the lifting head with the central bore of the reel, and the one or more arms of the lifting head is inserted through the central bore of the reel.

Beem teaches all the elements of the method for manipulating coil except for the coil being a coil of pipe.

However, Krise, Figures 1-2, teaches a coil of pipe 107.

It would have been obvious to one of ordinary skill in the art that pipes can be wound into coils, as taught by Krise, and that such coils could be manipulated by the apparatus of Beem.

With respect to Claim 20, Beem further teaches deploying pipe from the coil of pipe, the deploying comprising pulling an end of the pipe from the coil of pipe to unwind the coil of pipe.

With respect to Claim 21, Beem further teaches deploying pipe from the coil of pipe, the deploying comprising moving the trailer away from an end of the pipe, wherein the coil of pipe rotates about the lifting head during deploying to unwind the coil of pipe as the trailer moves away from the end of the pipe.

With respect to Claim 20, Beem further teaches deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and providing tension to the coil of pipe to control a speed of the unwinding, mechanism (friction pads on containment arms/retention mechanism/roller bed, etc) to provide tension - control speed of pipe deployed and/or to stop deployment.

Claims 22 is/are rejected under 35 U.S.C. 103 as being unpatentable over Beem in view of Krise as applied to Claims 19-21 and 23, and further in view of Crum (U.S. Patent No. 5,806,779).

With respect to Claim 22, Beem in view of Krise are advance above.

Beem in view of Krise teaches all the elements of the method for manipulating a coil of pipe except for deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and engaging a retention component with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying.

However, Crum, Figures 1 and 2, teaches engaging a retention component 32,35 with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism 40,42 applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying.

It would have been obvious to one of ordinary skill in the art to provide Bebinger with a retention component, as taught by Crum, for the purpose of supporting the roll in an axial direction.

Allowable Subject Matter

Claim 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM ARAUZ RIVERA whose telephone number is (571)272-6953. The examiner can normally be reached on Monday to Friday 9:00 AM to 8:00 PM MDT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael R Mansen can be reached on 571-272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/WILLIAM A. RIVERA/
Primary Examiner, Art Unit 3654

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NO. SOLICITUD	FECHA PRESENTACION	PRIMER INVENTOR	NO. REFERENCIA ABOGADO	NO. CONFIRMACION
15/337,110	10/28/2016	Christopher WHITE	(027US) 166301- 014002/US	3872
GREENBERG TRAURIG (HOU) DEPARTAMENTO DE PROPIEDAD INTELECTUAL 1000 Louisiana Street Oficina 1700 Houston, TEXAS 77002 ESTADOS UNIDOS DE AMERICA			EXAMINADOR	
			RIVERA, WILLIAM ARAUZ	
			UNIDAD ARTE	NÚMERO DE PAPEL
			3654	
			FECHA NOTIFICACION	MODO ENTREGA
			07/13/2018	ELECTRONICO

Por favor encuentre a continuación y/o adjunto una comunicación de la Oficina relacionada con esta solicitud o procedimiento.

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Resumen de Acción Oficial	No. Solicitud 15/337,110	Solicitante WHITE y otros	
	Examinador WILLIAM A RIVERA	Unidad Arte 3654	Estado AIA SI

-- La FECHA DE ENVIO de esta comunicación aparece en la hoja de cubierta con la dirección de correspondencia --

Periodo para Respuesta

UN PERIODO ESTATUTARIO CORTO PARA RESPUESTA SE DEFINE QUE VENCE 3 MESES DESDE LA FECHA DE ENVIO DE ESTA COMUNICACIÓN

- Extensiones de tiempo pueden estar disponibles bajo las disposiciones de 37 CFR 1.136(a). En ningún caso, sin embargo, una respuesta puede ser respondida a tiempo después de SEIS (6) MESES desde la fecha de envío de esta comunicación.
- Si NO se especifica periodo de respuesta anteriormente, el periodo estatutario máximo aplicará y vencerá SEIS (6) MESES desde la fecha de envío de esta comunicación.
- Falla en responder dentro del periodo definido o extendido, por estatuto, hará que la solicitud se vuelva ABANDONADA (35 U.S.C. Sección 133). Cualquier respuesta recibida por la Ofician después de tres meses después de la fecha de envío de esta comunicación, incluso si se presenta a tiempo, puede reducir cualquier término de patente concedido ajustado. Ver 37 CFR 1-704(b).

Estado

1) ☐ Respuesta a la comunicación presentada el _____.
☐ Una declaración bajo **37 CFR 1.130(b)** fue presentada el _____.

2a) ☐ Esta acción es **FINAL**. 2b) ☒ Esta acción no es final.

3) ☐ Se hizo una elección por el solicitante en respuesta a un requerimiento de restricción definido durante la entrevista el _____; el requerimiento de restricción y elección han sido incorporados en esta acción.

4) ☐ Dado que esta solicitud está en condición de aceptación excepto para asuntos formales, procesamiento en cuanto al fondo está cerrado de acuerdo con la práctica bajo *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213

Disposición de Reivindicaciones*n

5) ☒ Reivindicaciones 1-25 están pendientes en la solicitud

5a) De las anteriores, las reivindicaciones _____ son retiradas de consideración

6) ☐ Reivindicaciones _____ son concedidas.

7) ☒ Reivindicaciones 1-25 son rechazadas.

8) ☐ Reivindicaciones _____ son objetadas.

9) ☐ Reivindicaciones _____ son objeto de requerimiento de restricción y/o elección.

* Si alguna reivindicación ha sido determinada aceptable, usted puede ser elegible para beneficiarse del programa de **Aceleración de Trámite de Patente** en una oficina de propiedad intelectual participante para la correspondiente solicitud. Para más información, por favor ver http://www.uspto.gov/patents/init_events/index.jsp o enviar una inquietud a PPHfeedback@uspto.gov

Papeles de Solicitud

10) ☐ La descripción es objetada por el Examinador.

11) ☐ Las figuras presentadas el _____ son: a) ☐ aceptadas o b) ☐ objetadas por el Examinador.

El solicitante puede solicitar que cualquier objeción a las figuras se suspenda. Ver 37 CFR 1.85(a). Se requieren las hojas de reemplazo de figuras incluyendo la corrección, si las figuras son objetadas. Ver 37 CFR 1.121(d).

Prioridad bajo 35 U.S.C. Sección 119

12) ☐ Se hace reconocimiento de una reivindicación de prioridad extranjera bajo 35 U.S.C. Sección 119(a)-(d) o (f)

Copias certificadas:

a) ☐ Todas b) ☐ Algunas** c) ☐ Ninguna de:

1. ☐ Las copias certificadas de los documentos de prioridad han sido recibidas

2. ☐ Las copias certificadas de los documentos de prioridad han sido recibidas en la Solicitud No. _____

3. ☐ Las copias de las copias certificadas de los documentos de prioridad han sido recibidas en esta solicitud de Fase Nacional de la Oficina Internacional (Regla PCT 17.2(a))

** Ver la acción oficial detallada adjunta por una lista de las copias certificadas no recibidas.

Adjuntos

1) ☒ Notificación de Referencias Citadas (PTO-892) 3) ☐ Resumen de Entrevista (PTO-413)

No. Papel/Fecha Envío _____

2) ☒ Declaración de Divulgación de Información 4) ☐ Otro: _____

(PTO/SB/08a y/o PTO/SB/08b)

No. Papel/Fecha de Envío 07/03/2018

ACCIÓN DETALLADA

Notificación de Estado Pre-AIA o AIA

La presente solicitud, presentada el 16 de marzo de 2013, está siendo examinada bajo las disposiciones de primer inventor en presentar del AIA.

Doble Patente

La objeción no estatutaria de doble patente se basa en una doctrina creada judicialmente basa en la política pública (una política reflejada en el estatuto) con el fin de prevenir la extensión de tiempo injustificada o inadecuada del “derecho a excluir” concedido por una patente y para prevenir posible acoso por múltiples cesionarios. Una objeción de doble patente no estatutaria es adecuada cuando las reivindicaciones en conflicto no son idénticas, sino que por lo menos una reivindicación de solicitud examinada no es patentablemente distinta de la reivindicación de referencia porque la reivindicación examinada es anticipada, o sería obvia sobre, la reivindicación de referencia. Ver, por ejemplo, *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Una declaración terminal presentada a tiempo en cumplimiento con 37 CFR 1.321(c) o 1.321(d) puede ser usada para superar una objeción actual o provisional con base en doble patente no estatutaria siempre y cuando la solicitud de referencia o la patente se muestren como comúnmente poseídas con la solicitud examinada, o reivindica una invención hecha como resultado de las actividades emprendidas dentro del alcance de un acuerdo de investigación conjunta. Ver MPEP Sección 717.02 para solicitudes sujeto a examinación bajo las disposiciones de primer inventor en presentar del AIA como se explica en MPEP Sección 2159. Ver MPEP Sección 706.02(1)(1) – 706(1)(3) para solicitudes no objeto de examinación bajo las

disposiciones de primer inventor en presentar del AIA. Una declaración terminal debe estar firmada de acuerdo con 37 CFR 1.321(b).

El sitio web de Internet de la USPTO contiene formularios de declaración terminal los cuales puede ser usados. Por favor visite www.uspto-gv/patent/patents-forms. La fecha de presentación de la solicitud en la cual el formulario es presentado determina qué forma debe ser usada (por ejemplo, PTO/SB/25, PTO/SB/26, PTO/AIA/25, o PTO/AIA/26). Una Declaración eTerminal basada en web puede ser llenada de forma completa en línea usando pantallas web. Una Declaración eTerminal que cumpla con todos los requerimientos es auto procesada y aprobada inmediatamente con la presentación. Para más información acerca de Declaraciones eTerminales, refiérase a www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp

Las reivindicaciones 1 a 25 son provisionalmente rechazadas sobre la base de doble patente no estatutaria por ser no patentables sobre las reivindicaciones 1 a 9 de la Solicitud pendiente No. 15/799,615. Aunque las reivindicaciones en cuestión no son idénticas, ellas no son patentablemente distintas entre sí porque sería obvio para un experto en la materia que las Reivindicaciones 1 a 25 están incluidas y/o pueden ser recogidas a partir de las reivindicaciones 1 a 9 de la Solicitud pendiente No. 15/799,615.

Esta es una objeción provisional de doble patente no estatutaria debido a que las reivindicaciones patentablemente distintas no han sido, de hecho, patentadas.

Objeciones a la Reivindicación – 35 USC Sección 112

La reivindicación 23 es rechazada bajo 35 U.S.C. 112(b) o 35 U.S.C 112 (pre-AIA), segundo párrafo, por ser indefinidas por fallar en indicar de forma particular y reivindicar de forma distintiva la materia objeto a la cual el inventor o un coinventor, o para pre-AIA el solicitante se refiere como la invención.

La reivindicación 23 es vaga e indefinida. En las líneas 4-5, la frase “(almohadillas de fricción en brazos de contención/mecanismo de retención/rodillo,

etc.)” no es clara. Primero, se debe notar que los caracteres/frases dentro de un paréntesis son ignorados. Segundo, el solicitante pretende reivindicar las almohadillas? La frase dentro del paréntesis debe ser eliminada ya que no define limitaciones adicionales de la reivindicación.

Objeciones a las reivindicaciones – 35 USC Sección 102

La siguiente es una cita de los párrafos adecuados de 35 U.S.C 102 que forman la base para las objeciones bajo esta sección hechas en esta acción oficial:

Una persona tendrá derecho a una patente a menos que –

(a)(1) la invención reivindicada fue patentada, descrita en una publicación impresa, o en uso público, en venta o de otra forma disponible al público antes de la fecha de presentación efectiva de la invención reivindicada.

Las reivindicaciones 1-6, 9 y 24-25 son rechazadas bajo 35 U.S.C. 102(a)(1) por ser anticipadas por Bebinger (Patente No. US 2,667,476).

Con respecto a la Reivindicación 1, Bebinger, Figuras 1 a 12, enseña un remolque, que comprende:

una base de remolque 2;

un lecho de remolque 6 montado sobre la base de remolque 2;

una cabeza de levantamiento 120 que sobresale en una dirección hacia afuera desde el lecho de remolque 6 y la base de remolque 2 cuando la cabeza de levantamiento 120 está en una primera orientación (*Ver Figura 2; y Figura 4 donde 120 y el rodillo B están en una posición horizontal*), en donde una posición de la cabeza de levantamiento es ajustable a lo largo de un eje longitudinal del lecho de remolque 6; y

por lo menos un actuador acoplado 70 a la base de remolque 2,

en donde, cuando el por lo menos un actuador 70 está en un estado activado, la cabeza de levantamiento 120 se eleva a una segunda orientación (*ver Figura 3 donde el eje del rodillo B está en una posición vertical*) por el por lo menos un

actuador 70, y cuando el por lo menos un actuador 70 está en un estado no activado, la cabeza de levantamiento 120 está en la primera orientación.

Con respecto a la reivindicación 2, Bebinger además enseña que el por lo menos un actuador 70 está acoplado a la cabeza de levantamiento 120, y cuando el por lo menos un actuador 170 está en el estado activado, la cabeza de levantamiento 120 se eleva a la segunda orientación aparte de la base de remolque 2 y el lecho de remolque 6.

Con respecto a la reivindicación 3, Bebinger además enseña en donde el por lo menos un actuador 170 está acoplado al lecho de remolque 6, y cuando el por lo menos un actuador 170 está en el estado activado, el lecho de remolque 6 se eleva junto con la cabeza de levantamiento 120 a la segunda orientación.

Con respecto a la reivindicación 4, Bebinger además enseña en donde la cabeza de levantamiento 120 se acopla a una pista 110 que se extiende a lo largo del eje longitudinal del lecho de remolque 6, en donde la cabeza de levantamiento 120 se acopla y es movable a lo largo de la pista 110 para ajustar la posición de la cabeza de levantamiento 120 en el lecho de remolque 6.

Con respecto a la reivindicación 5, Bebinger además enseña en donde la cabeza de levantamiento 120 comprende uno o más miembros de brazo (*Ver Figura 6*) que sobresalen del lecho de remolque.

Con respecto a la reivindicación 6, Bebinger además enseña en donde la cabeza de levantamiento 120 comprende más de un miembro de brazo (*Ver Figura 6*), y en donde los miembros de brazo son ajustables alrededor de un eje central que se extiende hacia afuera desde el lecho de remolque 6 y a través de la cabeza de levantamiento 120.

Con respecto a la reivindicación 9, Bebinger además enseña una placa giratoria 86, en donde la cabeza de levantamiento 120 comprende uno o más brazos (*Ver Figura 6*) que sobresale hacia afuera desde la placa giratoria 86.

Con respecto a las reivindicaciones 24-25, el método descrito en estas reivindicaciones resultaría de forma inherente del uso del remolque de Bebinger como se indicó anteriormente.

Objeciones a las Reivindicaciones – 35 USC Sección 103

La siguiente es una cita de 35 U.S.C. 103 la cual forma la base para todas las objeciones de obviedad definidas en esta acción oficial:

Una patente para una invención reivindicada puede no ser obtenida, a pesar que la invención reivindicada no sea divulgada de forma idéntica como se define en la sección 102, si las diferencias entre la invención reivindicada y el arte previo sean tales que la invención reivindicada en su totalidad habría sido obvia antes de la fecha de presentación efectiva de la invención reivindicada para una persona que tiene habilidad ordinaria en la técnica a la cual la invención reivindicada pertenece. La patentabilidad no será negada por la forma en la cual la invención fue hecha.

La reivindicación 7 es rechazada bajo 35 U.S.C. 103 por no ser patentable sobre Bebinger (Patente No. US 2,667,476) en vista de Lyon (Patente No. US 438,015).

Con respecto a la reivindicación 7, Bebinger se definió anteriormente.

Bebinger enseña todos los elementos del remolque excepto por una mesa deslizante con un conjunto de rodillos fijados a la mesa deslizante, en donde la mesa deslizante se conecta al lecho de remolque.

Sin embargo, Lyon, Figura 1-3, enseña una mesa deslizante C con un conjunto de rodillos G fijados a la mesa deslizante D, en donde la mesa deslizante se conecta a un lecho de remolque A'.

Sería obvio para un experto en la materia suministrar a Bebinger con una mesa deslizante sobre rodillos, como se enseña por Lyon, para el propósito de ajustar la posición del soporte que depende del tamaño del rodillo.

Las reivindicaciones 10-11 son rechazadas bajo 35 U.S.C. 103 por no ser patentables sobre Bebinger (Patente No. US 2,667,476) en vista de Crum (Patente No. US 5,806,779).

Con respecto a la reivindicación 10, Bebinger se definió anteriormente.

Bebinger enseña todos los elementos del remolque excepto por un componente de retención acoplado al remolque y un mecanismo de energización configurado para aplicar una fuerza al componente de retención.

Sin embargo, Crum, Figuras 1 y 2, enseña un componente de retención 32,35 acoplado al remolque 11 y un mecanismo de energización 40,42 configurado para aplicar una fuerza al componente de retención 32, 35.

Sería obvio para un experto en la materia suministrar a Bebinger con un componente de retención, como se enseña por Crum, para el propósito de soportar el rodillo en una dirección axial.

Con respecto a la reivindicación 11, Crum además enseña en donde el mecanismo de energización 40,42 es un brazo hidráulico, energizado por fluido hidráulico presurizado.

Las reivindicaciones 19-21 y 23 son rechazadas bajo 35 U.S.C. 103 por no ser patentables sobre Beem y otros (Patente No. US 7,614,581), en adelante "*Beem*", en vista de Krise y otros (Publicación de Solicitud de Patente No. US 2005/0109870), en adelante "*Krise*".

Con respecto a la Reivindicación 19-21 y 23, Beem, Figuras 1-32, enseña un método para manipular una bobina de tubo, que comprende:

suministrar un remolque 100, que comprende:

un lecho de remolque 200 montado en una base de remolque 202; y

una cabeza de levantamiento 300 dispuesta sobre el lecho de remolque 202, la cabeza de levantamiento 300 comprende uno o más brazos 308 que sobresalen en una dirección hacia afuera desde el lecho de remolque 200;

posicionar la bobina de tubo 60 sobre la cabeza de levantamiento 300, en donde la bobina de tubo y el lecho de remolque 200 están en una orientación vertical (ver *Figura 5*), el posicionamiento comprende: ajustar una posición de la cabeza de levantamiento a lo largo del lecho de remolque (ver *Figura 4*) para alinear los uno o más brazos 308 de la cabeza de levantamiento 300 con un canal interior que se extiende a través de la bobina de tubo; y

insertar (ver *Figura 4*) el uno o más brazos 308 de la cabeza de levantamiento a través del canal interior de la bobina de tubo;

bajar el lecho de remolque (ver *Figuras 3-5*) a una orientación horizontal mientras la bobina de tubo se posiciona sobre la cabeza de levantamiento,

en donde la bobina de tubo se enrolla sobre un riel de modo que el canal interior de la bobina de tubo es concéntrico con un eje central del riel, y en donde durante el posicionamiento de la bobina de tubo en la cabeza de levantamiento, la posición vertical de la cabeza de levantamiento se ajusta para alinear los uno o más brazos de la cabeza de levantamiento con el eje central del riel, y el uno o más brazos de la cabeza de levantamiento se insertan a través del eje central del riel.

Beem enseña todos los elementos del método para manipular bobina excepto porque la bobina es una bobina de tubo.

Sin embargo, Krise, Figuras 1-2, enseña una bobina de tubo 107.

Sería obvio para un experto en la materia que los tubos pueden ser enrollados en bobinas, como se enseña por Krise, y que dichas bobinas pueden ser manipuladas por el aparato de Beem.

Con respecto a la reivindicación 20, Beem además enseña desplegar tubo de la bobina de tubo, el despliegue comprende jalar un extremo del tubo de la bobina de tubo para desenrollar la bobina de tubo.

Con respecto a la reivindicación 21, Beem además enseña desplegar tubo de la bobina de tubo, el despliegue comprende mover el remolque lejos de un extremo del tubo, en donde la bobina de tubo gira alrededor de la cabeza de

levantamiento durante el despliegue para desenrollar la bobina de tubo a medida que el remolque se mueve lejos del extremo del tubo.

Con respecto a la reivindicación 20, Beem además enseña desplegar tubo de la bobina de tubo, el despliegue comprende desenrollar tubo de la bobina de tubo; y suministrar tensión a la bobina de tubo para controlar una velocidad del mecanismo de desenrollado (almohadillas de fricción en brazos de contención/mecanismo de retención/rodillo, etc.) para suministrar velocidad de tensión – control del tubo desplegado y/o para detener el despliegue.

La reivindicación 22 es rechazada bajo 35 U.S.C. 103 por no ser patentable sobre Beem en vista de Krise como se aplica a las reivindicaciones 19-21 y 23, y además en vista de Crum (Patente No. US 5,806,779).

Con respecto a la reivindicación 22, Beem en vista de Krise se definieron anteriormente.

Beem en vista de Krise enseña todos los elementos del método para manipular una bobina de tubo excepto por desplegar tubo de la bobina de tubo, el despliegue comprende desenrollar tubo de la bobina de tubo; y acoplar un componente de retención con un diámetro externo de la bobina de tubo durante el despliegue, en donde un mecanismo de energización aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro externo de la bobina de tubo durante el despliegue.

Sin embargo, Crum, Figuras 1 y 2, enseña acoplar un componente de retención 32,35 con un diámetro externo de la bobina durante el despliegue, en donde un mecanismo de energización 40,42 aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro externo de la bobina de tubo durante el despliegue.

Hubiera sido obvio para un experto en la materia suministrar a Bebinger con un componente de retención, como se enseña en Crum, para el propósito de soportar el rollo en una dirección axial.

Materia Objeto Aceptable

La reivindicación 8 es objetada por ser dependiente de una reivindicación base rechazada, pero sería aceptable si es reescrita en forma independiente incluyendo todas las limitaciones de la reivindicación base y cualquier reivindicación involucrada.

Conclusión

El arte previo hecho de registro y con el que no se contó, es considerado pertinente a la divulgación del solicitante.

Cualquier inquietud relacionada con esta comunicación o comunicaciones anteriores del examinador deben dirigirse a WILLIAM ARAUZ RIVERA cuyo número telefónico es (571)272-6953. El examinador puede ser encontrado normalmente de lunes a viernes de 9:00 AM a 8:00 PM MDT.

Entrevistas con el examinador están disponibles vía teléfono, en persona, y en videoconferencia usando una herramienta de colaboración basada en web suministrada por la USPTO. Para agendar una entrevista, se invita al solicitante a usar la Solicitud Automática de Respuesta (AIR) de la USPTO en <http://www.uspto.gov/interviewpractice>.

Si los intentos por contactar al examinador por teléfono no son exitosos, el supervisor del examinador, Michael R Mansen puede ser contactado en 571-272-6608. El número de fax para la organización donde esta solicitud o procedimiento está asignada es 571-273-8300.

La información relacionada con el estado de una solicitud puede ser obtenida del sistema de Recuperación de Información de Solicitud de Patente (PAIR). Información de estado para solicitudes no publicadas está disponible a través del PAIR Privado únicamente. Para más información acerca del sistema PAIR, ver <http://pair-direct.uspto.gov>. Si tiene alguna inquietud sobre el acceso al sistema PAIR Privado, contacte el Centro de Negocios Electrónico (EBC) en 866-217-9197 (totalmente gratis). Si desea asistencia de un Representante de Servicio al Cliente

de la USPTO o acceso al sistema de información automático, llame al 800-786-9199
(EN ESTADOS UNIDOS O CANADA) o 571-272-1000.

/WILLIAM A. RIVERA/

Examinador Principal, Unidad de Arte 3654

Electronic Acknowledgement Receipt

EFS ID:	34299901
Application Number:	15337110
International Application Number:	
Confirmation Number:	3872
Title of Invention:	PIPE DEPLOYMENT TRAILER
First Named Inventor/Applicant Name:	Christopher WHITE
Customer Number:	70155
Filer:	Mark Gerard Chretien/Lucresha Sheffield
Filer Authorized By:	Mark Gerard Chretien
Attorney Docket Number:	(027US) 166301-014002/US
Receipt Date:	13-NOV-2018
Filing Date:	28-OCT-2016
Time Stamp:	18:13:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 100
RAM confirmation Number	111418INTEFSW00006791502638
Deposit Account	502638
Authorized User	Lucresha Sheffield

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	014002Response.pdf	196537	no	10
			768cffb8d73748cbee82b01c23f2385165104d47		

Warnings:**Information:**

2	Fee Worksheet (SB06)	fee-info.pdf	30780	no	2
			e0647829fe1487c661577e8e11f4885ac3b36df4		

Warnings:**Information:**

Total Files Size (in bytes):	227317
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION

It is hereby certified that this correspondence is being transmitted to the United States Patent and Trademark Office via the USPTO electronic filing system no later than 11:59 PM local time on November 13, 2018

Signed: /Lucresha M. Sheffield/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

White et al.

Application No.: 15/337,110

Filed: October 28, 2016

For: PIPE DEPLOYMENT TRAILER

Docket No.: (027US)
166301.014002/US

Art Unit: 3654

Examiner: Rivera, William Arauz

AMENDMENT AND RESPONSE
TO NON-FINAL OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

This correspondence is responsive to the Non-Final Office Action having a mailing date of July 13, 2018.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

All necessary extensions of time are hereby requested. Any and all necessary fees may be charged, or overpayments credited, to Greenberg Traurig LLP Deposit Account No. 50-2638 (Order No. (027US) 166301.014002/US).

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A trailer, comprising:

a trailer base;

a trailer bed mounted to the trailer base;

a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and

at least one actuator coupled to the trailer base,

wherein, when the at least one actuator is in an actuated state, the lifting head is raised to a second orientation by the at least one actuator, and when the at least one actuator is in a non-actuated state, the lifting head is in the first orientation.

2. (Original) The trailer of claim 1, wherein the at least one actuator is coupled to the lifting head,

and when the at least one actuator is in the actuated state, the lifting head is raised to the second orientation apart from the trailer base and the trailer bed.

3. (Original) The trailer of claim 1, wherein the at least one actuator is coupled to the trailer bed, and when the at least one actuator is in the actuated state, the trailer bed is raised together with the lifting head to the second orientation.
4. Cancelled
5. (Original) The trailer of claim 1, wherein the lifting head comprises one or more arm members that protrude from the trailer bed.
6. (Original) The trailer of claim 5, wherein the lifting head comprises more than one arm member, and wherein the arm members adjustable about a central axis extending outwardly from the trailer bed and through the lifting head.
7. (Original) The trailer of claim 1, further comprising a slide table with a set of rollers affixed to the slide table, wherein the slide table is connected to the trailer bed.
8. (Original) The trailer of claim 1, further comprising a set of rollers disposed along the trailer bed, wherein the set of rollers extend along the trailer bed in a radial direction from a central reference point located a distance along a length of the trailer bed, the length of the trailer bed extending along the longitudinal axis of the trailer bed from a base edge at an end of the trailer bed to an upper edge at an opposite end of the trailer bed, wherein the distance is greater than a radius of a coil of pipe.

9. (Original) The trailer of claim 1, further comprising a turntable, wherein the lifting head comprises one or more arms protruding outwardly from the turntable.

10. (Original) The trailer of claim 1, further comprising a retention component coupled to the trailer and an energizing mechanism configured to apply a force to the retention component.

11. (Original) The trailer of claim 10, wherein the energizing mechanism is a hydraulic arm, energized by pressurized hydraulic fluid.

12.-18. Cancelled

19. (Currently Amended) A method for manipulating a coil of pipe, comprising: providing a trailer, comprising:

a trailer bed mounted to a trailer base; and

a lifting head disposed on the trailer bed, the lifting head comprising one or more arms protruding in an outwardly direction from the trailer bed, wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed;

positioning the coil of pipe on the lifting head, wherein the coil of pipe and the trailer bed are in a vertical orientation, positioning comprising: adjusting a position of the lifting head along the trailer bed to align the one or more arms of the lifting head with an interior channel extending through the coil of pipe; and

inserting the one or more arms of the lifting head through the interior channel of the coil of pipe; lowering the trailer bed to a horizontal orientation while the coil of pipe is positioned on the lifting head, wherein the coil of pipe is wound on a reel such that the interior channel of the coil of pipe is concentric with a central bore of the reel, and wherein during the positioning of the coil of pipe on the lifting head, the vertical position of the lifting head is adjusted to align the one or more arms of the lifting head with the central bore of the reel, and the one or more arms of the lifting head is inserted through the central bore of the reel.

20. (Previously Presented) The method of claim 19, further comprising:
deploying pipe from the coil of pipe, the deploying comprising pulling an end of the pipe from the coil of pipe to unwind the coil of pipe.

21. (Previously Presented) The method of claim 19, further comprising:
deploying pipe from the coil of pipe, the deploying comprising moving the trailer away from an end of the pipe, wherein the coil of pipe rotates about the lifting head during deploying to unwind the coil of pipe as the trailer moves away from the end of the pipe.

22. (Previously Presented) The method of claim 19, further comprising:
deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and
engaging a retention component with an outer diameter of the coil of pipe during deploying, wherein an energizing mechanism applies a force to the retention component to engage the retention component with the outer diameter of the coil of pipe during deploying.

23. (Currently Amended) The method of claim 19, further comprising:
deploying pipe from the coil of pipe, the deploying comprising unwinding pipe from the coil of pipe; and
providing tension to the coil of pipe to control a speed of the unwinding~~[[.]]~~ mechanism ~~(friction pads on containment arms/retention mechanism/roller bed, etc)~~ to provide tension and ~~[[-]]~~ control the speed of pipe deployed and/or to stop deployment.

24. (Currently Amended) A method for spooling pipe, comprising: providing a trailer, comprising:
a trailer base;
a trailer bed mounted to the trailer base;
a lifting head protruding in an outwardly direction from the trailer bed and the trailer base when the lifting head is in a first orientation, wherein a position of the lifting head is adjustable along a longitudinal axis of the trailer bed, and wherein the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first orientation, and wherein the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed; and
at least one actuator coupled to the trailer base for moving the lifting head to a second orientation;
securing an end of the pipe to the lifting head; and
rotating the lifting head to wind the pipe around the lifting head.

25. (Original) The method of claim 24, wherein a motor is disposed at a base of the lifting head, wherein the motor rotates the lifting head.

REMARKS

This correspondence is responsive to the Non-Final Office Action dated July 13, 2018. Claims 1-11 and 19-25 were previously pending.

In the Non-Final Office Action, claim 8 was objected to as being dependent upon a rejected base claim, but was indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

The following claim rejections were also made:

- Claims 1-25 were provisionally rejected on the ground of non-statutory double patenting over claims 1-9 of co-pending US Patent Application No. 15/799,615;
- Claim 23 was rejected under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112 as being indefinite;
- Claims 1-6, 9, and 24-25 were rejected under 35 U.S.C. 102(a)(1) as being anticipated by Bebinger (US Pat. 2,677,476);
- Claim 7 was rejected under 35 U.S.C. 103 as being unpatentable over Bebinger (U.S. Patent No. 2,677,476) in view of Lyon (U.S. Patent No. 438,015);
- Claims 10-11 is/are rejected under 35 U.S.C. 103 as being unpatentable over Bebinger (U.S. Patent No. 2,677,476) in view of Crum (U.S. Patent No. 5,806,779);
- Claims 19-21 and 23 is/are rejected under 35 U.S.C. 103 as being unpatentable over Beem et al (U.S. Patent No. 7,614,581), in view of Krise et al (U.S. Patent Application Publication No. 2005/0109870); and

- Claims 22 is/are rejected under 35 U.S.C. 103 as being unpatentable over Beem in view of Krise as applied to Claims 19-21 and 23, and further in view of Crum (U.S. Patent No. 5,806,779).

In response to the Examiner's comments, Applicant has amended claims 1, 19, 23 and 24 and cancelled claim 4. No new matter has been introduced into the claims.

It is respectfully submitted that present claims 1-3, 5-11 and 19-25 overcome the issues raised by the Examiner in the Non-Final Office Action.

For example, as to the provisional non-statutory double patenting rejection, independent claim 1, 19 and 24 herein have all been amended such that they are materially distinguishable from, and not obvious in view of, the co-pending claims of US Application No. 15/799,615. Applicant notes that the claims in US Application No. 15/799,615 were amended in a Response filed on September 13, 2018. This was after July 13, 2018, the date of the current Non-Final Office Action in this case where the double patenting rejection was proposed. As a result of these amendments, the claims in this current case and in US Application No. 15/799,615 are significantly different and directed to distinguishable features. On this basis, it is respectfully requested that the non-statutory double patenting rejection be withdrawn.

Next, as to the rejections under 35 U.S.C. 112, Applicant has amended claim 23 per the Examiner's suggestions.

With respect to the rejections under 35 U.S.C. 102 and 35 U.S.C. 103, Applicant has amended independent claims 1, 19 and 24 to include the feature that the lifting head is coupled to a track extending along the longitudinal axis of the trailer bed when the lifting head is in the first

orientation, and the lifting head engages with and is movable along the track to adjust the position of the lifting head on the trailer bed.

The cited references do not teach or suggest this claimed feature. For example, the Examiner has alleged that Bebinger teaches a track (belt spindle 110) that extends along the longitudinal axis of trailer bed 6. (See Office Action at page 5). However, as shown in FIG. 10 of Bebinger, the belt spindle 110 extends along the longitudinal axis of frame members 6 *only* when the belt axis is in a horizontal position, compared to when the belt axis is in a vertical position as shown in FIG. 9. In FIG. 9 of Bebinger, the belt spindle 110 would be perpendicular to the longitudinal axis of frame members 6.

For at least this reason, Applicant's claimed subject matter is patentably distinguishable.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests that the current claims be examined and deemed patentable.

In order to expedite the examination of this application, Applicant requests the Examiner to contact the undersigned at (713) 374-3528 to discuss any matters that can be resolved by telephone.

Respectfully submitted,

Date: November 13, 2018

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Recibo de Acuse de Recibo Electrónico	
EFS ID:	34299901
Número de Solicitud:	15337110
Número de Solicitud Internacional:	
Número de Confirmación:	3872
Título de la Invención:	REMOLQUE DE DESPLIEGUE DE TUBERIA
Nombre de Primer Inventor/Solicitante:	Christopher WHITE
Número de Cliente:	70155
Presentador:	Mark Gerard Chretien/Lucresha Sheffield
Presentador Autorizado Por:	Mark Gerard Chretien
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Cuenta de Depósito	502638
Usuario Autorizado	Lucresha Sheffield

El Director de la USPTO por el presente está autorizado a cobrar las tasas indicadas y a acreditar cualquier sobrepago así: 37 CFR 1.17 (Tasas de solicitud de patente y procesamiento de reexamen) 37 CFR 1.19 (Tasas de suministro de documento) 37 CFR 1.21 (Tasas y costos misceláneos)					
Listado de Archivos:					
Número de Documento	Descripción de Documento	Nombre de Archivo	Tamaño de Archivo (Bytes)	Multiparte / .zip	Páginas (si aplica)
1	Modificación/Reconsideración Después de Objeción No Final	014002Response.pdf	196537	no	10
Advertencias:					
Información:					
Número de Documento	Descripción de Documento	Nombre de Archivo	Tamaño de Archivo (Bytes)	Multiparte / .zip	Páginas (si aplica)
2	Hoja de Tasas (SB06)	fee-info.pdf	30780	no	2
Advertencias:					
Información:					
Tamaño total de archivos (en bytes)				227317	
Este recibo de acuse de recibo evidencia el recibo en la fecha indicada por la USPTO de los documentos indicados, caracterizado por el solicitante, e incluyendo conteo de páginas, cuando sea aplicable. Este sirve como evidencia de recibo similar a una Tarjeta Postal, como se describe en MPEP 503. <u>Nuevas Solicitudes Bajo 35 U.S.C. 111</u> Si se está presentando una nueva solicitud y la solicitud incluye los componentes necesarios para una fecha de presentación (ver 37 CFR 1.53(b)-(d) y MPEP 506), un Recibo de Presentación (37 CFR 1.54) será emitido en el trámite y la fecha mostrada en este Recibo de Acuse de Recibo establecerá la fecha de presentación de la solicitud.					

Fase Nacional de una Solicitud Internacional bajo 35 U.S.C. 371

Si una presentación a tiempo para entrar en la fase nacional de una solicitud internacional cumple con las condiciones de 35 U.S.C. 371 y otros requerimientos aplicables, un Formulario PCT/DO/EO/903 indicando aceptación de la solicitud como una presentación de fase nacional bajo 35 U.S.C. 371 será emitido adicional al Recibo de Presentación, a su debido momento.

Nueva Solicitud Internacional Presentada con la USPTO como Oficina Receptora

Si una nueva solicitud internacional está siendo presentada y la solicitud internacional incluye los componentes necesarios para una fecha de presentación internacional (ver Artículo 11 de PCT y MPEP 1810), una Notificación del Número de Solicitud Internacional y de la Fecha de Presentación Internacional (Forma PCT/RO/105) será emitida en su debido momento, sujeto a prescripciones relacionadas con seguridad nacional, y la fecha mostrada en este Recibo de Acuse de Recibo establecerá la fecha de presentación internacional de la solicitud.

CERTIFICADO DE TRANSMISION

Por el presente se certifica que esta correspondencia está siendo transmitida a la Oficina de Patentes y Marcas de Estados Unidos por medio del sistema de presentación electrónica de la USPTO no más tarde de las 11:59 PM hora local el 13 de noviembre de 2018. Firmado: /Lucresha M. Sheffield/

EN LA OFICINA DE PATENTES Y MARCAS DE ESTADOS UNIDOS

En re Solicitud de: No. Referencia: (027US)
White y otros 166301.014002/US
Solicitud No. 15/337,110
Presentada: 28 de octubre de 2016 Unidad de Arte: 3654
Para: REMOLQUE DE DESPLIEGUE Examinador: Rivera, William Arauz
DE TUBERIA

MODIFICACION Y RESPUESTA

A ACCION OFICIAL NO FINAL

Comisionado para Patentes
P.O. Box 1450
Alexandria, Virginia 22313-1450

Estimado Comisionado:

Esta correspondencia es en respuesta a la Acción Oficial No Final que tiene fecha de envío del 13 de julio de 2018.

Las Modificaciones a las Reivindicaciones están reflejadas en el listado de reivindicaciones que comienza en la página 2 de este documento.

Las Observaciones comienzan en la página 8 de este documento.

Por el presente se solicitan todas las extensiones de tiempo necesarias. Cualquiera y todas las tasas pueden ser cobradas, o los sobrepagos acreditados, a

Greenberg Traurig LLP Cuenta de Depósito No. 50-2638 (Orden No. (027US) 166301.014002/US).

Modificaciones a las Reivindicaciones:

Este listado de reivindicaciones reemplazará todas las versiones anteriores, y listados, de reivindicaciones en la solicitud:

Listado de Reivindicaciones:

1. (Recientemente Modificada) Un remolque, caracterizado porque comprende:
 - una base de remolque;
 - una plataforma de remolque montada a la base de remolque;
 - un cabezal alzador que sobresale en una dirección hacia fuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque, y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y
 - al menos un actuador acoplado a la base de remolque, en donde, cuando el al menos un actuador está en un estado accionado, el cabezal alzador es elevado a una segunda orientación por al menos un actuador, y cuando al menos un actuador está en un estado no accionado, el cabezal alzador está en la primera orientación.

2. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador está acoplado al cabezal alzador, y cuando el al menos un actuador está en el estado accionado, el cabezal alzador es subido a la segunda orientación separado de la base de remolque y la plataforma de remolque.
3. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador es acoplado a la plataforma de remolque, y cuando el al menos un actuador está en el estado accionado, la plataforma de remolque es subida junto con el cabezal alzador a la segunda orientación.
4. Cancelada
5. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque el cabezal alzador comprende uno o más elementos de brazo que sobresalen desde la plataforma de remolque.
6. (Original) El remolque de conformidad con la reivindicación 5, caracterizado porque el cabezal alzador comprende más de un elemento de brazo, y en donde los elementos de brazo son ajustables alrededor de un eje central que se extiende hacia afuera desde la plataforma de remolque y a través del cabezal alzador.
7. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una tabla deslizante con un conjunto de rodillos fijos a la tabla deslizante, en donde la tabla deslizante está conectada a la plataforma de remolque.

8. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un conjunto de rodillos colocados a lo largo de la plataforma de remolque, en donde el conjunto de rodillos se extiende a lo largo de la plataforma de remolque en una dirección radial desde un punto de referencia central ubicado a una distancia a lo largo de una longitud de la plataforma de remolque, la longitud de la plataforma de remolque extendiéndose a lo largo del eje longitudinal de la plataforma de remolque desde un borde base en un extremo de la plataforma de remolque a un borde superior en un extremo opuesto de la plataforma de remolque, en donde la distancia es mayor que un radio de un serpentín de tubería.
9. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una mesa giratoria, en donde el cabezal alzador comprende uno o más brazos que sobresalen hacia afuera desde la mesa giratoria.
10. (Original) El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un componente de retención acoplado al remolque y un mecanismo energizante configurado para aplicar una fuerza al componente de retención.
11. (Original) El remolque de conformidad con la reivindicación 10, caracterizado porque el mecanismo energizante es un brazo hidráulico, energizado por fluido hidráulico presurizado.
- 12.– 18. Canceladas
19. (Recientemente Modificada) Un método para manipular un serpentín de tubería,

caracterizado porque comprende:

- proporcionar un remolque, que comprende:
 - una plataforma de remolque montada a una base de remolque; y
 - un cabezal alzador colocado sobre la plataforma de remolque, el cabezal alzador comprendiendo uno o más brazos que sobresalen en una dirección hacia afuera desde la plataforma de remolque; en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque;
- colocar el serpentín de tubería sobre el cabezal alzador, en donde el serpentín de tubería y la plataforma de remolque están en una orientación vertical, la colocación comprende:
 - ajustar una posición del cabezal alzador a lo largo de la plataforma de remolque para alinear uno o más brazos del cabezal alzador con un canal interior que se extiende a través del serpentín de tubería; e
 - insertar uno o más brazos del cabezal alzador a través del canal interior del serpentín de tubería;
- bajar la plataforma de remolque a una orientación horizontal mientras que el serpentín de tubería está colocado sobre el cabezal alzador; en donde el serpentín de tubería es devanado en un carrete de modo que el canal interior del serpentín de tubería queda concéntrico con un agujero central del carrete, y en donde durante la colocación del serpentín de tubería sobre el cabezal alzador, la posición vertical del cabezal alzador es ajustada para alinear el uno o más brazos del cabezal alzador con el agujero central del carrete, y el uno o más brazos del cabezal alzador es insertado a través del agujero central del carrete.

20. (Anteriormente Presentada) El método de conformidad con la reivindicación 19, caracterizado porque además comprende:

desplegar tubería desde el serpentín de tubería, el despliegue comprende jalar un extremo de la tubería desde el serpentín de tubería para desenrollar el serpentín de tubería.

21. (Anteriormente Presentada) El método de conformidad con la reivindicación 19, caracterizado porque además comprende:

desplegar la tubería desde el serpentín de tubería, el despliegue comprende mover el remolque lejos de un extremo de la tubería, en donde el serpentín de tubería rota alrededor del cabezal alzador durante el despliegue para desenrollar el serpentín de tubería a medida que el remolque se aleja del extremo de la tubería.

22. (Anteriormente Presentada) El método de conformidad con la reivindicación 19, caracterizado porque además comprende:

- desplegar la tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y
- acoplar un componente de retención con un diámetro exterior del serpentín de tubería durante el despliegue, en donde un mecanismo energizante aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro exterior del serpentín de tubería durante el despliegue.

23. (Recientemente Modificada) El método de conformidad con la reivindicación 19, caracterizado porque además comprende:

- desplegar tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y

- proporcionar tensión al serpentín de tubería para controlar la velocidad del desenrollado[[,]] mecanismo ~~(almohadillas de fricción sobre brazos de contención/mecanismo de retención/plataforma de rodillo, etc.)~~ para proporcionar tensión y [[-]] controlar la velocidad de la tubería desplegada y/o detener el despliegue.

24. (Recientemente Modificada) Un método para enrollar tubería, caracterizado porque comprende:

- proporcionar un remolque, que comprende:
 - o una base de remolque;
 - o una plataforma de remolque montada a la base de remolque;
 - o un cabezal alzador que sobresale en una dirección hacia afuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque; y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y
 - o al menos un actuador acoplado a la base de remolque para mover el cabezal alzador a una segunda orientación;
- asegurar un extremo de la tubería al cabezal alzador; y
- rotar el cabezal alzador para enrollar la tubería alrededor del cabezal alzador.

25.(Original) El método de conformidad con la reivindicación 24, caracterizado porque un motor está colocado en una base del cabezal alzador, en donde el motor rota el cabezal alzador.

OBSERVACIONES

Esta correspondencia es en respuesta a la Acción Oficial No Final de fecha del 13 de julio de 2018. Las reivindicaciones 1 a 11 y 19 a 25 estaban anteriormente pendientes.

En la Acción Oficial No Final, la reivindicación 8 fue objetada por ser dependiente de una reivindicación base objetada, pero se indicó que era aceptable si era reescrita en una forma independiente incluyendo todas las limitaciones de la reivindicación base y cualquier reivindicación intermedia.

Las siguientes objeciones a reivindicaciones fueron hechas:

- Las reivindicaciones 1 a 25 fueron provisionalmente objetadas sobre la base de patente doble no estatutaria sobre las reivindicaciones 1 a 9 de la Solicitud de Patente de EE.UU. pendiente 15/799,615;
- La reivindicación 23 fue objetada bajo 35 U.S.C. 112(b) o pre-AIA 35 U.S.C. 112 por ser indefinida;
- Las reivindicaciones 1-6, 9, y 24-25 fueron objetadas bajo 35 U.S.C. 102(a)(1) por ser anticipadas por Bebinger (Patente No. US 2,677,476);
- La reivindicación 7 fue objetada bajo 35 U.S.C. 103 por ser no patentable sobre Bebinger (Patente No. US 2,677,476) en vista de Lyon (Patente No. US 438,015);
- Las reivindicaciones 10-11 son objetadas bajo 35 U.S.C. 103 por no ser patentables sobre Bebinger (Patente No. US 2,677,476) en vista de Crum (Patente No. US 5,806,779);
- Las reivindicaciones 19-21 y 23 son objetadas bajo 35 U.S.C. 103 por no ser patentables sobre Beem y otros (Patente No. US 7,614,581), en vista de Krise y otros (Publicación de Solicitud de Patente No. US 2015/0109870); y

- La reivindicación 22 es objetada bajo 35 U.S.C. por ser no patentable sobre Beem en vista de Krise como es aplicado a las reivindicaciones 19-21 y 23, y además en vista de Crum (Patente No. US 5,806,779).

En respuesta a los comentarios del Examinador, el Solicitante ha modificado las reivindicaciones 1, 19, 23 y 24 y ha cancelado la reivindicación 4. No se ha introducido materia nueva en las reivindicaciones.

Respetuosamente se indica que las presentes reivindicaciones 1-3, 5-11 y 19-25 superan las objeciones planteadas por el Examinador en la Acción Oficial No Final.

Por ejemplo, con relación a la objeción provisional de doble patente no estatutaria, las reivindicaciones independientes 1, 19 y 24 acá han sido todas modificadas de modo que ellas son materialmente distinguibles de, y no obvias en vista de, las reivindicaciones pendientes de la Solicitud de EE.UU. No. 15/799,615. El Solicitante manifiesta que las reivindicaciones en la Solicitud de EE.UU. No. 15/799,615 fueron modificadas en una Respuesta presentada el 13 de septiembre de 2018. Esto fue después del 13 de julio de 2018, la fecha de la actual Acción Oficial No Final en este caso donde se propuso la objeción de doble patente. Como resultado de estas modificaciones, las reivindicaciones en este caso actual y en la Solicitud de EE.UU. No. 15/799,615 son significativamente diferentes y dirigidas a características distinguibles. Sobre esta base, respetuosamente se solicita que la objeción de doble patente no estatutaria sea retirada.

Luego, con relación a las objeciones bajo 35 U.S.C. 112, el Solicitante ha modificado la reivindicación 23 según las sugerencias del Examinador.

Con respecto a las objeciones bajo 35 U.S.C. 102 y 35 U.S.C. 103. El Solicitante ha modificado las reivindicaciones independientes 1, 19 y 24 para incluir la característica que la cabeza de levantamiento se acopla a una pista que se extiende a lo largo del eje longitudinal del lecho de remolque cuando la cabeza de

levantamiento está en la primera orientación, y la cabeza de levantamiento se acopla con y es movable a lo largo de la pista para ajustar la posición de la cabeza de levantamiento sobre el lecho de remolque.

Las referencias citadas no enseñan ni sugieren esta característica reivindicada. Por ejemplo, el Examinador ha indicado que Bebinger enseña una pista (husillo de correa 110) que se extiende a lo largo del eje longitudinal del lecho de remolque 6. (Ver Acción Oficial en la página 5). Sin embargo, como se muestra en la Figura 10 de Bebinger, el husillo de correa 110 se extiende a lo largo del eje longitudinal de los miembros de marco 6 *únicamente* cuando el eje de correa está en una posición horizontal, en comparación a cuando el eje de correa está en una posición vertical como se muestra en la Figura 9. En la Figura 9 de Bebinger, el husillo de correa 110 estaría perpendicular al eje longitudinal de los miembros de marco 6.

Por al menos esta razón, la materia objeto reivindicada del Solicitante es patentablemente distinguible.

CONCLUSION

En vista de las modificaciones y observaciones anteriores, el Solicitante respetuosamente solicita que las actuales reivindicaciones sean examinadas y consideradas patentables.

Con el fin de acelerar el examen de esta solicitud, el Solicitante solicita al Examinador contactar al abajo firmante en (713) 374-3528 para discutir cualquier asunto que pueda ser resuelto por teléfono.

Respetuosamente presentado,

Fecha: 13 de noviembre de 2018

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Abogados para el Solicitante

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15799595
Filing Date	2017-10-31
First Named Inventor	Christopher White et al
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Examiner Name	SNELTING, JONATHAN D
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1	1731823	EP		2006-12-13	Single Buoy Moorings	
2	2338581	CN		1999-09-15	SHEN ZHONGSHAN ET AL.	×
3	1991-99294	JP		1991-04-00	HOESER JUERGEN	☒
4	866852	GB		1961-05-03	Stanley Archibald Glendinning	☐
5	877192	EP		1998-11-11	Jiffy Tite Company, Inc.	☐
6	2002181263	JP		2002-06-26	Nippon Kokan Pipe Fittings Mfg Co., LTD.	☒
7	2002295778	JP		2002-10-09	Dainippon Plastics Co., LTD	☒
8	10318456	JP		1998-12-04	Mitsubishi Plastics Ind., LTD	☐
Change(s) applied to document, 9/1/19/2019 A.D./	1899721	EP		~~2000-13-19~~ 03-2008	Saipem Sa	☐
10	2001138769	WO		2001-05-31	Phoenix Ag	☐
11	H10148280	JP		1998-06-02	Bridgestone Corp.	☒

10 (iv)	TABLA DE CORRESPONDENCIA DE REIVINDICACIONES		
Reivindicaciones en la solicitud en Colombia (NOTA. LAS REIVINDICACIONES ACÁ INDICADAS CORRESPONDEN A AQUELLAS MODIFICADAS EN MODIFICACIÓN VOLUNTARIA EL 10/05/2019)		Reivindicaciones otorgables en la solicitud internacional	Explicación sobre la suficiente correspondencia ó Comentarios que explican la correspondencia
1. Un remolque, caracterizado porque comprende: - una base de remolque; - una plataforma de remolque montada a la base de remolque; - un cabezal alzador que sobresale en una dirección hacia fuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque, y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y - un actuador o actuadores acoplado a la base de remolque, en donde, cuando el actuador o actuadores está en un estado accionado, el cabezal alzador es elevado a una segunda orientación por un actuador o actuadores, y cuando el actuador o actuadores está en un estado no accionado, el cabezal alzador está en la primera orientación.		1. Un remolque, caracterizado porque comprende: - una base de remolque; - una plataforma de remolque montada a la base de remolque; - un cabezal alzador que sobresale en una dirección hacia fuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque, y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y - al menos un actuador acoplado a la base de remolque, en donde, cuando el al menos un actuador está en un estado accionado, el cabezal alzador es elevado a una segunda orientación por al menos un actuador, y cuando al menos un actuador está en un estado no accionado, el cabezal alzador está en la primera orientación.	<i>Esta reivindicación fue modificada con el fin de eliminar el término "al menos un".</i>
2. El remolque de conformidad con la reivindicación 1, caracterizado porque el actuador o actuadores está acoplado al cabezal alzador, y cuando el actuador o actuadores está en el estado accionado, el cabezal alzador es subido a la segunda orientación separado de la base de remolque y la plataforma de remolque.		2. El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador está acoplado al cabezal alzador, y cuando el al menos un actuador está en el estado accionado, el cabezal alzador es subido a la segunda orientación separado de la base de remolque y la plataforma de remolque.	<i>Esta reivindicación fue modificada con el fin de eliminar el término "al menos un".</i>

3. El remolque de conformidad con la reivindicación 1, caracterizado porque el actuador o actuadores es acoplado a la plataforma de remolque, y cuando el actuador o actuadores está en el estado accionado, la plataforma de remolque es subida junto con el cabezal alzador a la segunda orientación.	3. El remolque de conformidad con la reivindicación 1, caracterizado porque el al menos un actuador es acoplado a la plataforma de remolque, y cuando el al menos un actuador está en el estado accionado, la plataforma de remolque es subida junto con el cabezal alzador a la segunda orientación.	<i>Esta reivindicación fue modificada con el fin de eliminar el término “al menos un”.</i>
4. El remolque de conformidad con la reivindicación 1, caracterizado porque el cabezal alzador comprende un elemento o elementos de brazo que sobresalen desde la plataforma de remolque.	4. El remolque de conformidad con la reivindicación 1, caracterizado porque el cabezal alzador comprende uno o más elementos de brazo que sobresalen desde la plataforma de remolque.	<i>Esta reivindicación fue modificada con el fin de eliminar el término “uno o más”.</i>
5. El remolque de conformidad con la reivindicación 4, caracterizado porque el cabezal alzador comprende elementos de brazo, y en donde los elementos de brazo son ajustables alrededor de un eje central que se extiende hacia afuera desde la plataforma de remolque y a través del cabezal alzador.	5. El remolque de conformidad con la reivindicación 4, caracterizado porque el cabezal alzador comprende más de un elemento de brazo, y en donde los elementos de brazo son ajustables alrededor de un eje central que se extiende hacia afuera desde la plataforma de remolque y a través del cabezal alzador.	<i>Esta reivindicación fue modificada con el fin de eliminar el término “más de un”.</i>
6. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una tabla deslizante con un conjunto de rodillos fijos a la tabla deslizante, en donde la tabla deslizante está conectada a la plataforma de remolque.	6. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una tabla deslizante con un conjunto de rodillos fijos a la tabla deslizante, en donde la tabla deslizante está conectada a la plataforma de remolque.	<i>Es la misma reivindicación.</i>
7. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un conjunto de rodillos colocados a lo largo de la plataforma de remolque, en donde el conjunto de rodillos se extiende a lo largo de la plataforma de remolque en una dirección radial desde un punto de referencia central ubicado a una distancia a lo largo de una longitud de la plataforma de remolque, la longitud de la plataforma de remolque extendiéndose a lo largo del eje longitudinal de la plataforma de remolque desde un borde base en un extremo de la plataforma de remolque a un borde superior en un extremo opuesto de la plataforma de remolque, en donde la distancia es mayor que un radio de un serpentín de tubería.	7. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un conjunto de rodillos colocados a lo largo de la plataforma de remolque, en donde el conjunto de rodillos se extiende a lo largo de la plataforma de remolque en una dirección radial desde un punto de referencia central ubicado a una distancia a lo largo de una longitud de la plataforma de remolque, la longitud de la plataforma de remolque extendiéndose a lo largo del eje longitudinal de la plataforma de remolque desde un borde base en un extremo de la plataforma de remolque a un borde superior en un extremo opuesto de la plataforma de remolque, en donde la distancia es mayor que un radio de un serpentín de tubería.	<i>Es la misma reivindicación.</i>
8. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una mesa giratoria, en donde el cabezal alzador comprende un brazo o brazos que sobresalen hacia afuera desde la mesa giratoria.	8. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende una mesa giratoria, en donde el cabezal alzador comprende uno o más brazos que sobresalen hacia afuera desde la mesa giratoria.	<i>Esta reivindicación fue modificada con el fin de eliminar el término “uno o más”.</i>

9. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un componente de retención acoplado al remolque y un mecanismo energizante configurado para aplicar una fuerza al componente de retención.	9. El remolque de conformidad con la reivindicación 1, caracterizado porque además comprende un componente de retención acoplado al remolque y un mecanismo energizante configurado para aplicar una fuerza al componente de retención.	<i>Es la misma reivindicación.</i>
10. El remolque de conformidad con la reivindicación 9, caracterizado porque el mecanismo energizante es un brazo hidráulico, energizado por fluido hidráulico presurizado.	10. El remolque de conformidad con la reivindicación 9, caracterizado porque el mecanismo energizante es un brazo hidráulico, energizado por fluido hidráulico presurizado.	<i>Es la misma reivindicación.</i>
11. Un método para manipular un serpentín de tubería, caracterizado porque comprende: - proporcionar un remolque, que comprende: - o una plataforma de remolque montada a una base de remolque; y - o un cabezal alzador colocado sobre la plataforma de remolque, el cabezal alzador comprendiendo un brazo o brazos que sobresalen en una dirección hacia afuera desde la plataforma de remolque; en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; - colocar el serpentín de tubería sobre el cabezal alzador, en donde el serpentín de tubería y la plataforma de remolque están en una orientación vertical, la colocación comprende: - o ajustar una posición del cabezal alzador a lo largo de la plataforma de remolque para alinear el brazo o brazos del cabezal alzador con un canal interior que se extiende a través del serpentín de tubería; e - o insertar el brazo o brazos del cabezal alzador a través del canal interior del serpentín de tubería; - bajar la plataforma de remolque a una orientación horizontal mientras que el serpentín de tubería está colocado sobre el cabezal alzador; en donde el serpentín de tubería es devanado en un carrete de modo que el canal interior del serpentín de tubería queda concéntrico con un agujero central del carrete, y en donde durante la colocación del serpentín de tubería sobre el cabezal	11. Un método para manipular un serpentín de tubería, caracterizado porque comprende: - proporcionar un remolque, que comprende: - o una plataforma de remolque montada a una base de remolque; y - o un cabezal alzador colocado sobre la plataforma de remolque, el cabezal alzador comprendiendo uno o más brazos que sobresalen en una dirección hacia afuera desde la plataforma de remolque; en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; - colocar el serpentín de tubería sobre el cabezal alzador, en donde el serpentín de tubería y la plataforma de remolque están en una orientación vertical, la colocación comprende: - o ajustar una posición del cabezal alzador a lo largo de la plataforma de remolque para alinear uno o más brazos del cabezal alzador con un canal interior que se extiende a través del serpentín de tubería; e - o insertar uno o más brazos del cabezal alzador a través del canal interior del serpentín de tubería; - bajar la plataforma de remolque a una orientación horizontal mientras que el serpentín de tubería está colocado sobre el cabezal alzador; en donde el serpentín de tubería es devanado en un carrete de modo que el canal interior del serpentín de tubería queda concéntrico con un agujero central del carrete, y en donde durante la colocación del serpentín de tubería sobre el cabezal	<i>Esta reivindicación fue modificada con el fin de eliminar el término "uno o más".</i>

alzador, la posición vertical del cabezal alzador es ajustada para alinear el brazo o brazos del cabezal alzador con el agujero central del carrete, y el brazo o brazos del cabezal alzador es insertado a través del agujero central del carrete.	alzador, la posición vertical del cabezal alzador es ajustada para alinear el uno o más brazos del cabezal alzador con el agujero central del carrete, y el uno o más brazos del cabezal alzador es insertado a través del agujero central del carrete.	
12. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: desplegar tubería desde el serpentín de tubería, el despliegue comprende jalar un extremo de la tubería desde el serpentín de tubería para desenrollar el serpentín de tubería.	12. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: desplegar tubería desde el serpentín de tubería, el despliegue comprende jalar un extremo de la tubería desde el serpentín de tubería para desenrollar el serpentín de tubería.	<i>Es la misma reivindicación.</i>
13. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: desplegar la tubería desde el serpentín de tubería, el despliegue comprende mover el remolque lejos de un extremo de la tubería, en donde el serpentín de tubería rota alrededor del cabezal alzador durante el despliegue para desenrollar el serpentín de tubería a medida que el remolque se aleja del extremo de la tubería.	13. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: desplegar la tubería desde el serpentín de tubería, el despliegue comprende mover el remolque lejos de un extremo de la tubería, en donde el serpentín de tubería rota alrededor del cabezal alzador durante el despliegue para desenrollar el serpentín de tubería a medida que el remolque se aleja del extremo de la tubería.	<i>Es la misma reivindicación.</i>
14. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: - desplegar la tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y - acoplar un componente de retención con un diámetro exterior del serpentín de tubería durante el despliegue, en donde un mecanismo energizante aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro exterior del serpentín de tubería durante el despliegue.	14. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: - desplegar la tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y - acoplar un componente de retención con un diámetro exterior del serpentín de tubería durante el despliegue, en donde un mecanismo energizante aplica una fuerza al componente de retención para acoplar el componente de retención con el diámetro exterior del serpentín de tubería durante el despliegue.	<i>Es la misma reivindicación.</i>
15. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: - desplegar tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y - proporcionar tensión al serpentín de tubería para controlar la velocidad del desenrollado, mecanismo para proporcionar tensión y controlar la velocidad de la tubería desplegada y/o detener el despliegue.	15. El método de conformidad con la reivindicación 11, caracterizado porque además comprende: - desplegar tubería desde el serpentín de tubería, el despliegue comprende desenrollar la tubería desde el serpentín de tubería; y - proporcionar tensión al serpentín de tubería para controlar la velocidad del desenrollado mecanismo para proporcionar tensión y controlar la velocidad de la tubería desplegada y/o detener el despliegue.	<i>Es la misma reivindicación.</i>

16. Un método para enrollar tubería, caracterizado porque comprende: - proporcionar un remolque, que comprende: - o una base de remolque; - o una plataforma de remolque montada a la base de remolque; - o un cabezal alzador que sobresale en una dirección hacia afuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque; y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y - o un actuador o actuadores acoplado a la base de remolque para mover el cabezal alzador a una segunda orientación; - asegurar un extremo de la tubería al cabezal alzador; y - rotar el cabezal alzador para enrollar la tubería alrededor del cabezal alzador.	16. Un método para enrollar tubería, caracterizado porque comprende: - proporcionar un remolque, que comprende: - o una base de remolque; - o una plataforma de remolque montada a la base de remolque; - o un cabezal alzador que sobresale en una dirección hacia afuera desde la plataforma de remolque y la base de remolque cuando el cabezal alzador está en una primera orientación, en donde una posición del cabezal alzador es ajustable a lo largo de un eje longitudinal de la plataforma de remolque; y en donde el cabezal alzador está acoplado a un riel que se extiende a lo largo del eje longitudinal de la plataforma de remolque cuando el cabezal alzador está en la primera orientación, y en donde el cabezal alzador se acopla con y se mueve a lo largo del riel para ajustar la posición del cabezal alzador en la plataforma de remolque; y - o al menos un actuador acoplado a la base de remolque para mover el cabezal alzador a una segunda orientación; - asegurar un extremo de la tubería al cabezal alzador; y - rotar el cabezal alzador para enrollar la tubería alrededor del cabezal alzador.	<i>Esta reivindicación fue modificada con el fin de eliminar el término "al menos un".</i>
17. El método de conformidad con la reivindicación 16, caracterizado porque un motor está colocado en una base del cabezal alzador, en donde el motor rota el cabezal alzador.	17. El método de conformidad con la reivindicación 16, caracterizado porque un motor está colocado en una base del cabezal alzador, en donde el motor rota el cabezal alzador.	<i>Es la misma reivindicación.</i>